INDIANA
STATE DEPARTMENT OF
AGRICULTURE

Possibilities Unbound: The Plan for 2025

Indiana Agriculture's Strategic Plan

INDIANA'S STRATEGIC PLAN FOR AGRICULTURE

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INDIANA'S STRATEGIC PLAN FOR AGRICULTURE

EXECUTIVE OVERVIEW

Several critical forces are at work today that are fundamentally restructuring our food and agricultural system. They will create a much different business environment for this sector in the future. The implications of these trends and the changes they imply are enormous. Our state and national institutions, policies, regulations and the entire infrastructure which were built to support a different agriculture and food system are increasingly stressed as the system attempts to deal with the changing environment.

The traditional system has served Indiana and the nation exceedingly well in the past – the result of far-sighted planning and investment. It is now our responsibility to reappraise and reinvent that foundation to meet the needs of Indiana agriculture well into the future. That is the purpose of this exercise – the development of important strategies to help guide agriculture in this State in the new century.

Why a Strategic Plan?

Indiana agriculture is highly diverse – growing everything from mint and tomatoes to corn and soybeans, and raising ducks, chickens, pigs and cows. The State is a national leader in many of these areas due to the hard work and efforts of all Hoosier farmers.

However, the focus on agriculture has been lacking in recent years from State government. The newly created Indiana State Department of Agriculture (ISDA) brings this much-needed and expected attention. Now that the Department restructuring is complete, it is time to plan for our future. Indiana agriculture needs direction, and this strategic plan is intended to be our road map to the future.

ISDA staff brought together a team of producers and key industry leaders over the last two months to develop this strategic plan. It builds heavily on the BioCrossroads study, *A Strategic Plan for Indiana's Agricultural Economy*, released in January 2005. It also is based on a comprehensive review of Indiana agriculture – its structure and markets – and the larger national and global forces affecting us.

Setting goals and direction means by necessity that hard choices must be made about growth opportunities and priorities. The planning team identified seven key strategies, outlined specific actions to achieve each of them and establised key metrics to gauge progress. More importantly, the team also developed benchmarks to measure Indiana's success over the next few years and into the future.

STATE OF INDIANA AGRICULTURE – KEY CONCLUSIONS

A thorough review of the current status of Indiana agriculture and several key policy and structural trends leads us to the following conclusions:

Agriculture is a cornerstone of Indiana's economy and represents a significant opportunity for the State's economic growth and development. Indiana's overall economy is mostly concentrated in manufacturing, retail and service industries, but the food and agriculture sector's share (over 5%) is an important and changing component. Farming and other related food and agricultural services also support a large number of jobs throughout the State – over 15% of the total workforce.

Indiana is in a unique position to emerge as a global leader in several food and agricultural industries. Indiana long has been a national and global leader in agriculture. The State's highly productive land base, its central location to much of the U.S. population, the innovative research of Indiana's higher education institutions and private industry, and its manufacturing expertise are central to its strength. The forces at work in the sector today put Indiana in a unique position to emerge as a global leader in several areas where we have comparative advantages.

Indiana's best opportunities are in the hardwood, grains, oilseeds and pork sectors. The State must focus on maintaining and *growing* its market share in each of these sectors.

- **Hardwoods.** Indiana's 4.3 million acres of high quality hardwood forests contribute significantly to the State's economy. Indiana ranks first nationally in the manufacture of wood office furniture and forest-based businesses, which are the fourth largest manufacturing sector by employment in the State. Significant pressures from foreign competitors and significant untapped private wood lots create the need to find ways to maintain this strong position.

- **Grains and oilseeds.** Traditionally known for being a national leader in corn and soybean production, Indiana must continue to support the economic viability of these segments while at the same time develop new technologies and uses for these crops – a great example being biofuels.

- **Pork.** Indiana has a long tradition of pork production supported by skilled producers and a strong industry infrastructure. The State's surplus corn and soybean meal production, abundant cropland and excess processing capacity make it ideally suited for pork industry growth. A lack of an industrywide focus or growth plan over the last decade has resulted in a 30% reduction in breeding herd inventories and a 20% decline in market hog inventories.

Indiana must actively participate in and lead the burgeoning biofuels industry by developing a comprehensive energy research and investment facilitation plan. Investments by industries involved in renewable energy are needed. Nationally, growth in ethanol production has more than doubled since 2000, and biodisel production of only 1 million gallons in 1999 is now over 30 million. Domestic energy production has not kept pace with utilization, contributing to recent price spikes. Clean Air Act non-attainment zones have emerged in many parts of the country, creating immediate and

substantial demand for fuel additives from renewable sources. Rural areas with nearby commodity production are well suited sites for processing facilities.

Indiana can and should establish itself as the global leader in food science and innovation to better address critical health and nutrition issues for the State's consumers. New excessive and unbalanced food consumption patterns of Americans are resulting in obesity and increased risk of cardiovascular disease and diabetes. There is a growing demand now from the consumer for healthy and nutritious foods. The ability to develop and commercialize these new foods and then distribute them to the public will be critical in the future.

Indiana's agricultural structure is very diverse. Only a small number (3%) of large-scale operations produce over two-thirds of the State's agricultural output. The remaining 97% of farms are in two distinct categories: those relying on their farms for 100% of their income and those with part-time farms. The wide variety of agricultural endeavors, circumstances and lifestyles requires more refined policy and business initiatives that are best suited for each type of farm segment with a particular focus on those who today rely entirely on farming for their income.

U.S. farm and trade policy are critical to the long-term health and viability of Indiana's food and agricultural sector. The State must play a leadership role in advocating Federal farm and trade policies that support our rural and farm economies. This must be done in close coordination with Indiana's Congressional delegation and other key policy officials at the U.S. Department of Agriculture (USDA), the Office of the U.S. Trade Representative, and in Indiana's farm and commodity groups, among others. ISDA's Division of Soil Conservation also has an important role in this coordination due to recent increases in Federal conservation funding.

Indiana's regulatory bodies must be improved to support a strong and growing agriculture, with an emphasis on leadership, permitting and compliance. Agriculture's growth in the past has been constrained by regulatory processes. The Indiana Department of Environmental Management (IDEM) plays the most active role of any State agency in regulating agriculture. Other agencies such as the Department of Natural Resources (DNR), the Department of Transportation (DOT), the Board of Animal Health (BOAH) also are involved. Greater coordination is needed between ISDA and IDEM especially to ensure the needs of an expanding agriculture and protection of our natural resources are balanced.

Indiana's State Department of Agriculture must lead and guide food and agriculture's growth and must have a focused, action-based strategic plan. Indiana's future agricultural growth critically depends on a strong and prioritized plan. ISDA must lead this effort while still coordinating closely with other State agencies and key stakeholder groups. The leadership of ISDA will undoubtedly raise the visibility of agriculture within the State and across the nation.

Our changing farm structure suggests that a "one size fits all" approach to business development and agricultural policy is no longer sufficient. A narrow focus on basic commodity production, increased environmental and regulatory concerns and missed

opportunities in new markets have left Indiana agriculture with little direction for the future.

These findings and conclusions form the basis for our overarching vision for food and agriculture in Indiana. There are seven specific, action-oriented strategies that Indiana should pursue to maintain its current competitive position, address its key weaknesses and build upon its strengths.

VISION

Indiana will be a Global Center for Food and Agricultural Innovation and Commercialization.

Agriculture is fundamentally important to the Indiana economy but is uniquely poised to become even more so in the future. Indiana's strength in the production of traditional crop and livestock commodities as well as hardwoods must be maintained. More importantly, this strength must be used to advance new market development for these and other products and research and technological opportunities around the world.

The combination of the research expertise of the State's higher education institutions as well as the strong manufacturing background will facilitate the innovation of food and agricultural products and processing techniques. Indiana must work to ensure that a supportive business and a competitive regulatory climate is in place to foster commercialization of these products.

STRATEGIES

Each of these strategies is equally important to the objective to grow Indiana's food and agricultural sector and each will be pursued with equal resolve.

Hardwoods – Increase the cost-competitiveness of Indiana's high quality hardwood products.

Indiana is known around the world for growing, processing and assembling quality hardwood trees and products. Growing competition from wood product manufacturers in China, Latin America and elsewhere, however, threatens the viability of Indiana's hardwood industry. It is critical that a focused initiative be developed to not only maintain the competitiveness of Indiana's hardwood sector, but more importantly, to create new growth opportunities. This must be done through both technology breakthroughs and encouraging more private wood lot owners to participate.

Bioenergy – Maximize Indiana's competitive advantage in agriculturally derived energy.

Indiana has the opportunity to capitalize on its grain and oilseed production capacity and its strategic geographic position to the East Coast by dramatically increasing its production of biofuels. Purdue University is one of the top research universities in the nation in the development of biofuels and other alternative energy sources.

Additional business and research initiatives will be considered to facilitate an attractive investment climate for bioenergy production as well as define future bioenergy opportunities.

Regulatory Coordination – Ensure that agricultural regulatory standards are science-based and do not impede economic development.

Indiana's newly created State Department of Agriculture will not assume new any regulatory authority. However, it must work closely with the State's regulatory agencies to ensure science-based standards are considered in agricultural matters. An Agricultural Regulatory Council will be formed and led by the Lieutenant Governor's office to review important crosscutting agricultural issues. Senior officials from the relevant agricultural regulatory agencies will be directly involved.

Indiana's livestock industries – pork, dairy and poultry especially – increasingly are pressured by emerging environmental concerns. ISDA, IDEM and other agencies must support these industries by improving implementation of existing regulations, supporting development of new technologies to control animal waste and odor. At the same time, this coordination must protect Indiana's natural resources and enhance the working relationships between farmers and the citizens of their communities.

Pork – Double hog production by adopting breakthrough technologies in environmental and animal welfare management.

The natural conflict that has emerged between environmental stewardship, animal welfare and increased livestock production needs attention in this State. Successful, managed growth in this sector is dependent on a full review of current State regulations and adoption of new breakthrough technologies to control and ideally eliminate waste and odor issues.

Indiana has the land base, grain and oilseed production and research capabilities in animal science, health, and nutrition needed to double hog production. And, Indiana's pork industry has both the capacity to process additional animals and the ability to transport finished products to end markets.

Diversity of Production – Lead the nation in identifying diversification strategies that enhance the economic viability of producers of different sizes and areas of production.

The rapid changes in agriculture to a consumer-driven industry creates niches and market opportunities for all of Indiana's producers – from grains and oilseeds to livestock to specialty and horticultural crops. Indiana's farm structure also has evolved over time. It is not homogenous and thus requires a focus on opportunities tailored to producers of different sizes and types of production.

The ability to diversify and seek new markets and new product opportunities will be critical to many Indiana farms. The State will help identify viable platforms for these producers.

Food Processing – Incubate innovative food products that use Indiana agricultural commodities to support nutritious and healthy diets.

Indiana's abundance of raw agricultural commodities and expertise in food manufacturing ideally position it for new investments in food processing. Consumer demand for healthy and nutritious foods is growing in response to emerging health issues like the obesity epidemic.

Indiana has tremendous research and development capacity for more nutritious and healthy foods, particularly at Purdue University. And, the ability to commercialize these new foods will be critical. The State will create a partnership between the research and investment communities to lead the nation in launching new companies.

Federal Farm and Trade Policy - Establish a State leadership role in formulating U.S. agricultural and trade policy to promote sustainable economic competitiveness.

Indiana agriculture is directly affected by federal farm and trade policies. The farm programs that are legislated by the Farm Bill provide significant support to producers. International trade and agricultural exports also are critically important to the economic well-being of the sector.

Debate on the next Farm Bill is beginning and several key trade negotiations (i.e., the multilateral World Trade Organization talks and other bilateral and regional negotiations) are underway. ISDA along with stakeholder groups should support key Federal and Indiana Congressional officials in advocating policies and programs that are best suited to our agricultural structure and our rural and farm economies.

ACTION PLAN

The State of Indiana and ISDA will work with key stakeholder groups to take specific actions to make each strategy a reality. The action plan for each strategy will be further developed over the next few months and publicly released at the Indiana State Fair in August.

Each action will be focused in five key areas. A detailed list of initial actions is on page 32. The list of actions will be reviewed by ISDA at least quarterly. New actions will be added as needed and as these are completed.

1. **Statewide Initiatives.** All strategies will require statewide activities and initiatives such as legislative changes, economic development opportunities, securing Federal and private funds, and leading new technology development.

ISDA will immediately convene an ad hoc task force for each key strategy. Each task force will develop the more detailed action plans to be presented at the State Fair.

1. **County/Regional Strategic Teams.** ISDA will foster County or Regional Strategic Teams to include leadership from the local Farm Bureau, Soil and Water Conservation Districts, County Extension, and the County Plan Commission, among others. A consulting group from ISDA will initially lead this team.

   ISDA will work to reach all counties in the next four years and help draft economic development plans. ISDA also will support county/regional efforts to develop land use policies as part of these plans. The County/Regional Strategic Teams will implement and refine the plans on their own.

1. **Communication and Education.** To advance the kind of change anticipated, an aggressive communication and education effort must be employed. To accomplish this, ISDA will conduct extensive outreach in many formats such as media, public forums and farm visits.

1. **Federal Interaction.** Every strategy will require and will benefit from Federal policy or funding. Thus, every strategy will have detailed actions that will require ISDA to work with the Congress, USDA and other Federal agencies.

1. **Upstream Innovation.** Indiana has an opportunity to build upon its heritage and reinvent food and agriculture. This will require new and/or renewed partnerships between Purdue University, the State's producers, processors, manufacturers, ISDA, the State legislature, and private funding sources. Also, aggressive and specific objectives must be established which not only lead to breakthrough innovation but also to the practical commercialization of these innovations.

MEASURES

Measures must be in place to provide accountability and to determine the success of a strategic plan. A wide set of measures that provide a benchmark for the current state of Indiana agriculture have been compiled and include such items as production and consumption of biofuels; production and processing of various commodities such as pork; and the emergence of new processing facilities, among others. These measures start on page 39.

Covering the total plan, ISDA will track the following key measures. Measures for each strategy are also outlined.

	2004	2005	2006	2007	2008	2009	2010	2015	2020	2025
Jobs (000)										
-- Farm	58.3	57.1	56.6	56.0	55.4	54.9	54.3	52.0	50.0	50.0
-- Processing	197.0	202.9	208.9	215.3	221.7	228.4	235.2	246.9	250.0	250.0
Ag's % of GSP	5%	5%	5%	6%	6%	6%	7%	7%	8%	8%
Innovation – food and ag patents	8	8	9	9	9	10	10	12	14	15

NEXT STEPS

This strategic plan sets the course for Indiana agriculture over the next several years but also is a work in progress. Changing forces and emerging issues require that we be flexible in our planning and operations. ISDA will work with the newly created Agricultural Advisory Board to regularly review the overall plan and action items.

ISDA also will cooperate with those food and agricultural industries not specifically highlighted in the Strategic Plan in their own efforts to expand and grow. This cooperation will certainly vary by industry segment but may be in the form of open dialogue, consideration of specific industry proposals, among others.

ISDA's two divisions, the Indiana Grain Buyers and Warehouse Licensing Agency and the Division of Soil Conservation, also are developing tailored strategies and actions that support this overall plan. These should be completed by August 2005.

INDIANA'S STRATEGIC PLAN FOR AGRICULTURE

Any strategic planning process requires a full understanding of the current situation and operating environment. The planning team, led by the Indiana State Department of Agriculture (ISDA), spent a considerable amount of time reviewing the status of Indiana agriculture. This was necessary to understand the full scope of the system – the number of farms and their structure, trends in key commodity sectors, etc. The team also reviewed larger national and global forces, each of which have direct and indirect effects on Indiana agriculture. The following section summarizes some of the key findings of this review.

INDIANA AGRICULTURE – AN OVERVIEW

Introduction – the U.S. Food and Agricultural System

The U.S. agriculture and food system is among the world's largest and most sophisticated manufacturing and distribution structures. It organizes the production and distribution of commodities and services nationwide for products of every kind from every corner of the nation. And, it is globally interconnected to the degree that developments in Europe, Asia, South America and elsewhere have powerful and immediate impacts.

The system's efficiency depends heavily on its access to technology and innovation – investments that permit Americans to enjoy the highest levels of food consumption for just 10% of disposable income, among the world's lowest. Just as the system's links to world markets constitute a major force for change, its dynamic and persistent productivity growth is extremely important in its competition for capital investment. Its capacity for rapid development and adoption of new technologies has been a product centerpiece since at least the 18th Century, making it among the fastest changing components of the economy.

The agriculture and food system is one of the largest components of the nearly $11 trillion U.S. economy, contributing $1.3 trillion in Gross Domestic Product (GDP) (nearly 12% of the total in 2002) and employing 17% of the labor force. It orchestrates the flow of $209 billion worth of agricultural inputs necessary to support production on 323 million acres of cropland by about 2 million farms in every corner of the United States.[1]

While the most obvious characteristic of the system is its huge size, an equally important dimension is its sophistication. Food products and services must arrive at plants and outlets worldwide "just in time" to permit highly efficient processing and distribution. While the direct contribution of farming to the system is relatively small (only 5% of GDP), it is central in decisions controlling the purchase of very large amounts of inputs and the sale of even greater amounts of commodities and services.

[1] The U.S. Food and Fiber System Briefing Room. U.S. Department of Agriculture (USDA)/Economic Research Service (ERS), http://www.ers.usda.gov/Briefing/FoodMarketStructures/foodandfiber.htm.

Indiana Agriculture – Contribution to State Economy

Production agriculture and forestry and fishing services accounted for $2.5 billion of Indiana's $204.9 billion Gross State Product (GSP) in 2002.[2] However, the addition of other related sectors such as lumber and wood products, furniture and fixtures, food and beverage products, textile mill products, paper and related products, etc. contribute an additional $7.0 billion to the GSP. While Indiana's GSP is concentrated in manufacturing, retail and service industries, the food and agriculture sector's share is an important and changing component of the state economy.

Farming and other related food and agricultural services also support a large number of jobs throughout the State. In 2001, 553,526 jobs were tied to farm and farm-related businesses – over 15% of the total 3.6 million workforce.[3]

Population Demographics

Indiana's population has grown from 5.2 million residents in 1970 to 6.2 million in 2004 – making it the 14th most populated State in the nation.[4] Over that same period, however, the number of residents in rural areas has declined. In 1980, 24.2% of the State's residents were in rural areas. By 1990 that percentage had declined to 23.7% and most recently was 22.6% in 2003.[5]

While declining in number, Indiana's rural population and their communities are a fundamentally important piece of the State's economic development and revitalization efforts. In 2002, nearly 21% of the State's workforce (3.6 million) was in rural areas.[6] The annual earnings that year for rural-based jobs was $29,907 compared to $37,533 for urban-based jobs.[7]

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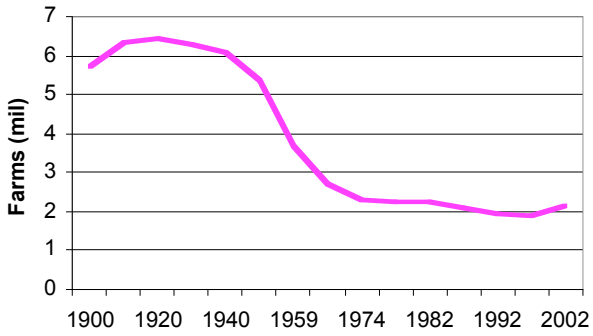
[2] Gross State Product by Industry for Indiana. Bureaus of Economic Analysis, Department of Commerce at http://www.bea.doc.gov/bea/regional/gsp
[3] Economic Research Service (ERS)/USDA. Indiana Farm and Farm-related Employment, 2001.
[4] "Population Estimates for 2004," INContext. January/February 2005.
[5] ERS/USDA. http://www.ers.usda.gov/StateFacts/IN.htm#PIE.
[6] Ibid.
[7] Ibid.

Farm Sector Demographics

The number of farms in the United States has steadily declined over the last 70-plus years from about 6.5 million places in the mid-1920s to now just over 2 million in 2002 (Figure 1).[8]

Over the last 30 years, the number of farms in Indiana has declined by 32% from 87,915 in 1974 to 60,296 in 2002 (Figure 2). While the number of farms has declined, the average size has increased from 191 acres to 250 acres over the same period.

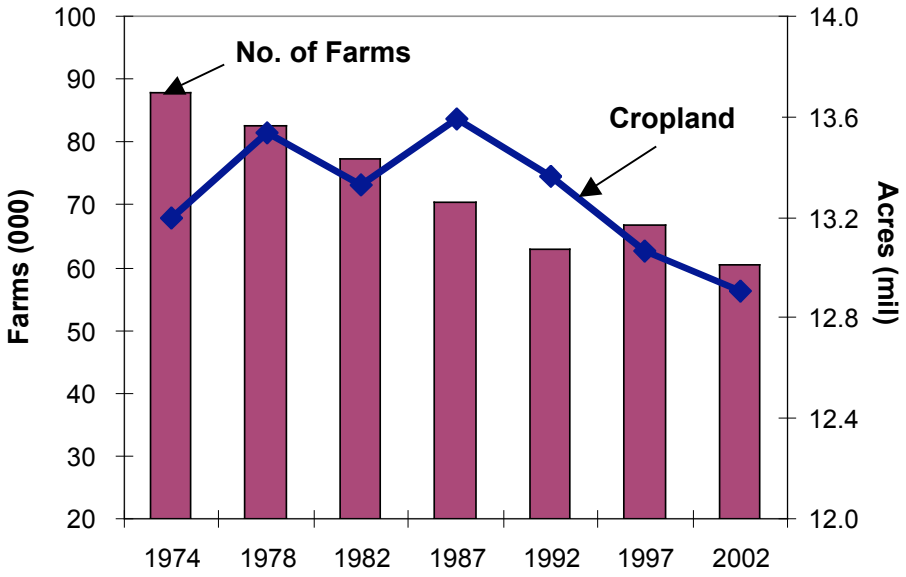
Figure 1. Number of Farms in United States, 1900-2002



Definition of a farm – any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year.

Total cropland (devoted to the major field crops) has held relatively steady declining only 300,000 acres from 13.2 million in 1974.[9] This represents 56% of Indiana's total land area of 23.2 million acres. The availability of farmland in Indiana is not a constraint to agriculture's growth, rather land use or "right-to-farm" issues are emerging problems.

Figure 2. Indiana Farm Numbers and Total Cropland, 1974-2002



Source: NASS/USDA, 2002 Census of Agriculture.

[8] "Trends in U.S. Agriculture." USDA/NASS – based on Census of Agriculture data 1900-2002.
[9] An additional 4.3 million acres in Indiana are categorized as timberland. "Forests of Indiana: Their Economic Importance 2004," USDA/Forest Service – May 2004.

A more detailed review of Indiana's farm structure reveals some interesting characteristics when arrayed by sales size – many of which are similar to the national farm structure. The number of "commercial" units with over $500,000 in annual gross sales is small – only 1,856 farms or 3% of the State's total (Table 1).[10] However, they account for 68% of the State's total agricultural output. These farms are highly technically efficient and their productivity growth over the last ten to fifteen years has been dramatic. New capital investments and technological advances such as precision farming, upgraded machinery purchases, widespread Internet use, adoption of biotechnology crop varieties and marketing advances all have transformed the cost structure of this group of farms.

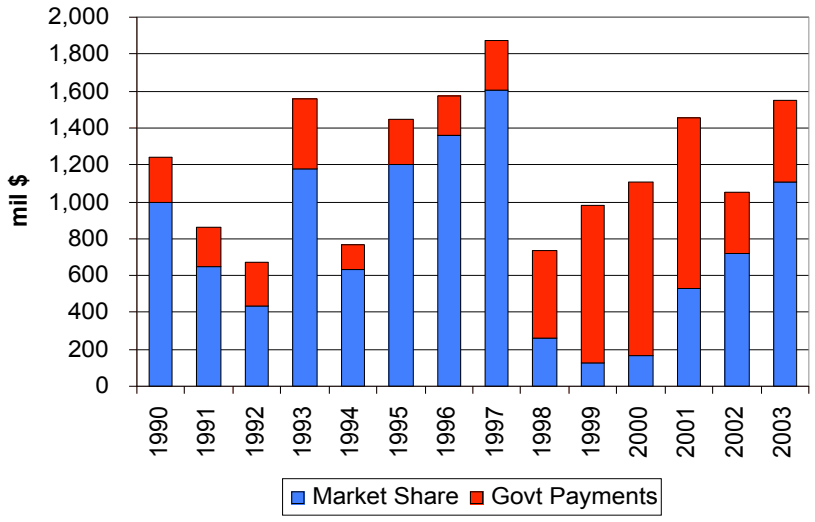
Table 1. Indiana Farm Sector Structure – 2002

Farm Sales Category	Number	% of Total	% of Output
Over $500,000	1,856	3.1	68.0
$100,000 - $500,000	8,505	14.1	19.0
Under $100,000	49,935	82.8	13.0
Total	60,296	100.0	100.0

A second group of farms is apparent but much more difficult to characterize than the larger, commercial farms described above. This group has smaller gross sales ($100,000 to $500,000) and still is significantly linked to farming. These 8,505 farms (14% of all Indiana farms) produce 19% of gross sales. This group likely receives most of its household income from farm sources and is struggling to achieve the necessary size economies to remain competitive.

It is difficult to categorize the remaining farms neatly because they are highly diverse, reflecting a wide variety of circumstances, lifestyles and endeavors. It is clear that these farms with annual sales under $100,000 are more closely linked to the general economy than to the agricultural economy. There are 49,935 of these units in Indiana (83% of the total) but they produce only 13% of the State's total output.

Figure 3. Indiana Net Cash Income – Share of Income from Market Sources and Government Payments – 1990-2003



Source: Economic Research Service/USDA Farm Income Briefing Room.

[10] 2002 Census of Agriculture. http://www.nass.usda.gov/census/census02/volume1/in/st18_1_003_003.pdf.

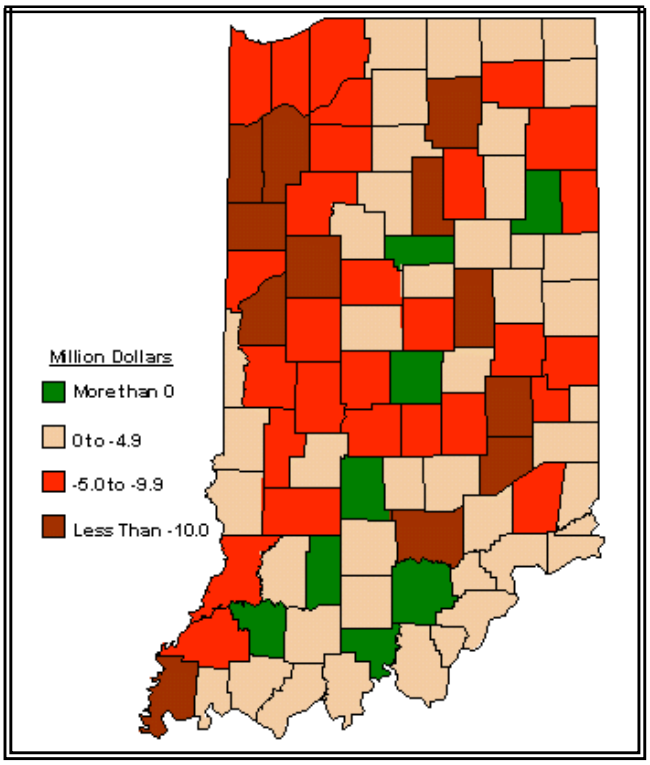
Farm Income.

Indiana's farm sector income is highly variable from year to year depending on current market and price conditions. The amount of government benefits that flow to the sector also varies each year, but has been a significant component of income over the last several years – accounting for as much as 87% of total net cash income in 1999 (Figure 3).

In 2003, nearly 27,000 of Indiana's farmers (about 45%) received subsidies from the federal government. That year, nearly 30% ($446 million) of Indiana's net cash income (nearly $1.6 billion) was derived from the federal government in the form of direct payments or marketing loan gains.

A closer look at income data by county offers more troubling evidence of the sector's reliance on federal program payments. According to National Agricultural Statistics Service (NASS)/USDA data for 2001, only eight counties were profitable without government payments (Figure 4). And, had there been no federal support, 12 counties that same year would have lost more than $10 million in net farm income.

Figure 4. 2001 Net Farm Income Without Government Payments



Land Values.

Land prices and cash rents have moved higher in every region of the country since the mid-1990s. The average value of Indiana cropland in 2004 was $2,750 per acre (compared to a national average of $1,780) and cash rents reached $107 per acre

(Table 2). These values have steadily increased for a number of reasons including strong business returns from farming; capitalization of direct government payments; as well as urban development.

Table 2. Indiana Farm Real Estate and Cash Rent Values – 1998-2004

	Farm Real Estate	Cropland	Cropland Cash Rent
	Avg. value per acre ($)		*Cash rent per acre ($)*
1998	2,030	2,100	98.00
1999	2,220	2,270	99.00
2000	2,260	2,250	100.00
2001	2,350	2,330	100.00
2002	2,460	2,440	101.00
2003	2,570	2,550	103.00
2004	2,770	2,750	107.00

Source: NASS/USDA, Agricultural Land Values and Cash Rents, August 2004

The steady increases in farmland values are of concern as producers plan on expanding their operations or beginning farmers seek to enter the business. The cost of land can be a prohibitive factor.

Segmentation of Indiana's Agricultural Sector

Indiana's food and agriculture sector is highly diverse. Table 3 below illustrates some of the 2003 national production rankings for the State's leading agricultural sectors.[11]

Table 3. Indiana Rankings in Key Agricultural Sectors

Commodity	Number
Tomatoes for Processing	2
Peppermint / Soybeans	4
Corn / Spearmint / Fresh Market Cantaloupe / Fresh Market Watermelon	5
Snap Beans for Processing	7
Blueberries	8
Tobacco / Cucumbers for Processing	9
Egg-type Chicks Hatched	2
Ice Cream	2
Eggs	4
All Hogs – inventory	5
All Chickens – inventory	5

The Agriculture Advisory Board of BioCrossroads completed an extensive review of the key segments (or "clusters") of Indiana food and agriculture.[12] Several were highlighted as immediate priorities to maintain and expand into domestic and global markets. There

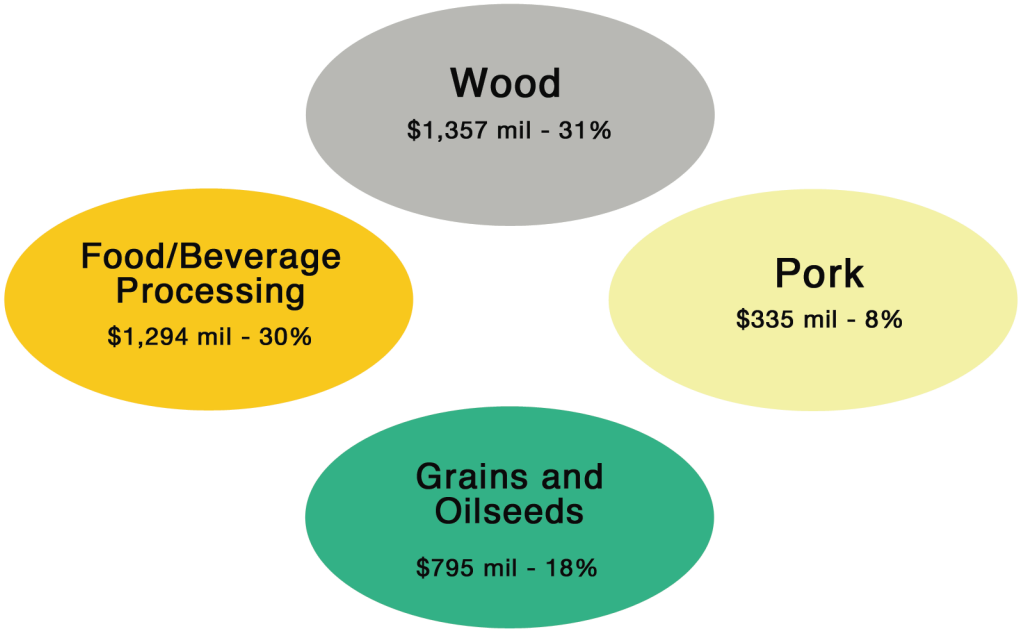
[11] Indiana Agricultural Statistics 2003-2004.
[12] "A Strategic Plan for Indiana's Agricultural Economy." BioCrossroads, January 2005.

are four that are critically important to agriculture today and will be key to growth in the future (Figure 5). They include:

- Wood;
- Food and beverage processing;
- Grains and oilseeds; and
- Pork.

These four segments employed about 182,000 people in 2003, including nearly 60,000 farmers. They also represented 86% of the total wages paid in the agricultural economy. The following chart indicates the actual wages paid in each segment.

Figure 5: Key Indiana Food and Agriculture Segments:



Four segments account for $3.78 billion in wages paid (2003) – 87% of total sector.

The following sections provide additional background on these segments and their importance to Indiana's food and agricultural sector.

HARDWOODS. Indiana's 4.3 million acres of high quality hardwood forests contribute significantly to the State's economy. Indiana ranks first nationally in the manufacture of wood office furniture and forest based businesses are the fourth largest manufacturing sector by employment in the State.

Despite this strong position, significant threats exist to challenge this sector. Maintaining the State's forest resources is first among these. About 85% of the State's

timberland is privately owned by approximately 100,000 landowners.[13] Three-fourths of the landowners are individuals with an average of less than 25 acres – and the number of acres per landowner is declining over time.

The furniture industry as a whole also has gone through a significant downturn with over 35% of the country's production idled or moved to China. These pressures only will increase creating the need for Indiana to find ways to maintain its current competitive position.

FOOD PROCESSING. The majority of food processing takes place either at the point of agriculture production or at the place of food consumption. Therefore, it is not surprising to see most food processing capacity in States like California, Texas, Illinois, Ohio and Pennsylvania (consumption by population) or Georgia, Iowa and Wisconsin (agriculture production).

When compared to other states, Indiana ranked 10th in value added food manufacturing in 2001 with $5.7 billion, behind:

California	$19.49 billion
Illinois	$13.97
Texas	$11.66
Pennsylvania	$10.73
Ohio	$10.44
Georgia	$7.93
Iowa	$7.89
Wisconsin	$7.72
New York	$6.62

Indiana's food processing industry consists of 439 establishments employing more than 34,000 people.[14] Indiana ranks among the top 10 producers of dairy products, processed grain and soft drinks in terms of employment, payroll and value of shipments.

Wages within the food processing industry vary significantly depending on the product area. Wage difference can be explained, at least in part, by the variation in production methods and the accompanying skill requirements. For example, wet corn milling involves high-skill, complex manufacturing processes. Wages in this area are significantly higher than in the meat-processing industry, where the same set of employee skills is not necessary.

Increasingly, Indiana's raw agricultural products are shipped to other states, where products are processed and sold back as finished products. However, Indiana hosts the nation's largest food science department at Purdue University, making it a logical candidate for a national food-processing laboratory. The investment climate in the State also could be improved to entice food manufacturers to locate here.

[13] "Forests of Indiana: Their Economic Importance 2004," USDA/Forest Service – May 2004.

[14] U.S. Bureau of Labor Statistics, Covered Employment and Wages survey data – 2001.

GRAINS AND OILSEEDS. Indiana is traditionally known for being among the nation's leading producers of grains (corn, soybeans and wheat). In 2002, farmers produced $4.7 billion worth of agricultural products in 2002, with 67.5% ($3.2 billion) coming from the sale of grains and oilseeds.

CORN. Indiana farmers planted between 5.4 and 5.8 million acres of corn over the last several years with a harvest of 750 to 885 million bushels (1999-2003) and a market value of $1.4 to $2.0 billion. Indiana's corn producers greatly benefit from the State's strong livestock industry and processing plants. A large portion of Indiana corn also is transported by rail to southeastern States for livestock feed and shipped to the Gulf of Mexico for export.

Indiana has enjoyed a significant basis advantage due to the proximity to river markets and the southeastern livestock production. This advantage appears to be slipping as other Corn Belt states are rapidly expanding ethanol production and other corn processing facilities.

Additional value added opportunities will help maintain Indiana's competitiveness in corn. Continued growth of the livestock sector and expansion of starch, sweetener and ethanol processing facilities are important to this sector's growth.

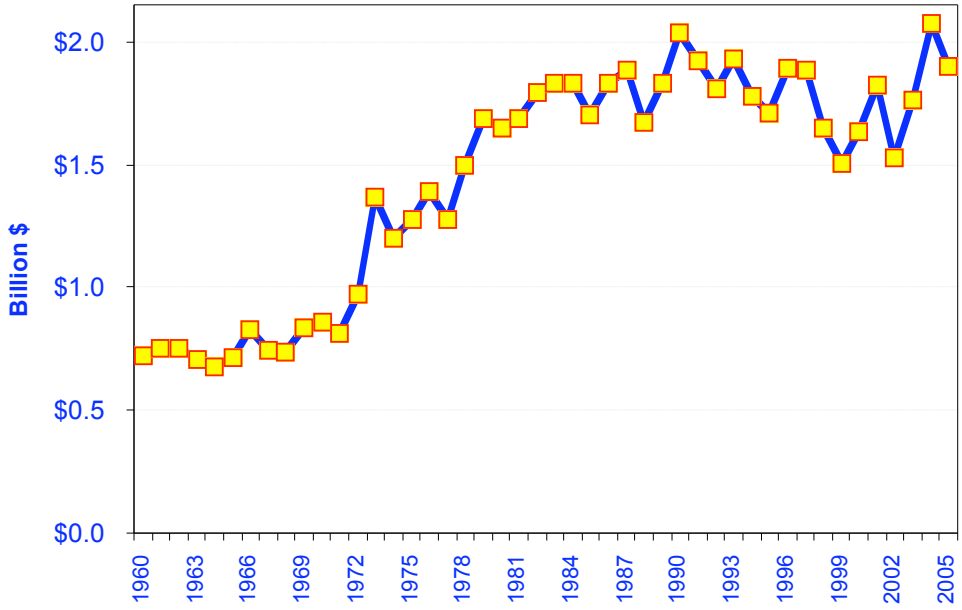
SOYBEANS. Indiana has significantly increased its production of soybeans over the last 15 years. In 1990, planted acreage was 4 million acres and in 2004 was 5.5 million. In addition to the expanded acreage, yields have increased 1.2% annually since 1980. Indiana's crushing capacity, though, has not grown at the same pace and effectively has been stagnant since 1997.

The largest opportunities for Indiana soybeans will come from the creation of new demand for both soybean meal and oil. Specifically, the soybean industry is focused on the promotion of biodiesel and support for expansion of Indiana's livestock industry (hogs and poultry), which consume almost 90% of the soybean meal fed in the State.

ANIMAL AGRICULTURE. Animal production in Indiana is another strong component of the overall agricultural sector. The value of livestock sales has grown significantly since the 1960s, but has remained relatively flat in recent decades with sales consistently in the range of $1.7 to $2.0 billion (Figure 6). This trend virtually mirrors the growth in the U.S. livestock sector which has increased from $20 billion in 1960 to a record $122 billion in 2004.[15] In 2002, Indiana ranked 23rd in the nation based on the value of livestock and poultry products.[16]

[15] ERS/USDA, http://www.ers.usda.gov/Data/FarmIncome/finfidmu.htm.
[16] NASS/USDA, 2002 Census of Agriculture. Texas ranked 1st with $10.4 billion in livestock and poultry product sales. Ohio was 21st with $1.8 billion and Illinois 22nd with $1.79 billion.

Figure 6. Value of Indiana Animal Production



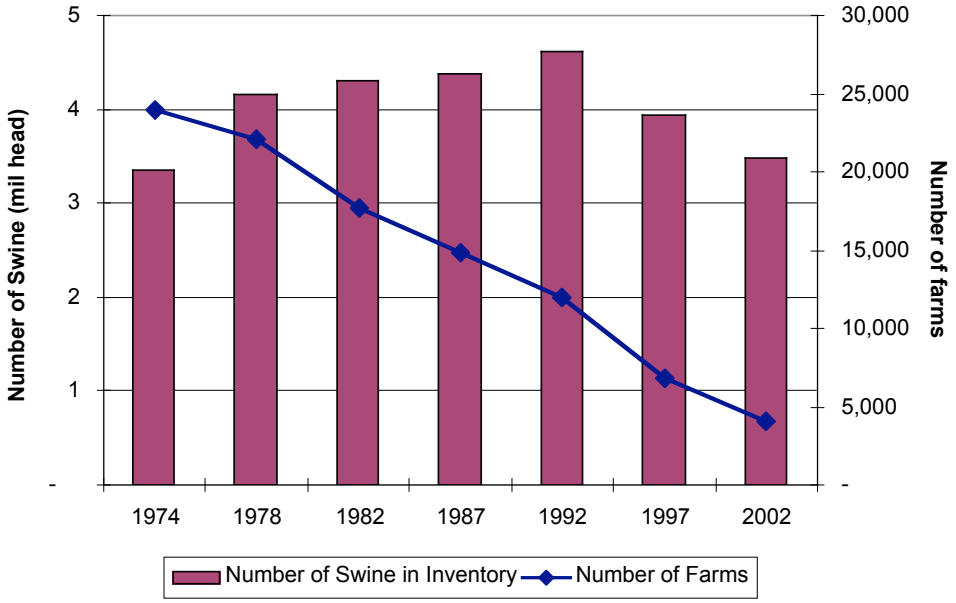
Source: 1960-2003 USDA. Purdue University estimates for 2004-05.

PORK. Indiana has a long tradition of hog production supported by skilled producers and a strong industry infrastructure. The State's surplus corn and soybean meal production, abundant cropland for distribution of organic animal nutrients and sufficient processing capacity all make Indiana ideally suited for pork industry growth. In 2003, cash receipts from hogs ($846 million) accounted for 47% of total livestock receipts and 16% of the total agricultural receipts.[17]

Over the last 10 years, however, Indiana's pork production has been steadily declining (Figure 7). Breeding herd inventories have fallen nearly 30% and market hog inventories have dropped nearly 20%, while production capacity in the United States has increased. Indiana ranked 5th in hog inventory as of January 1, 2004.

[17] Indiana Agricultural Statistics 2003-2004.

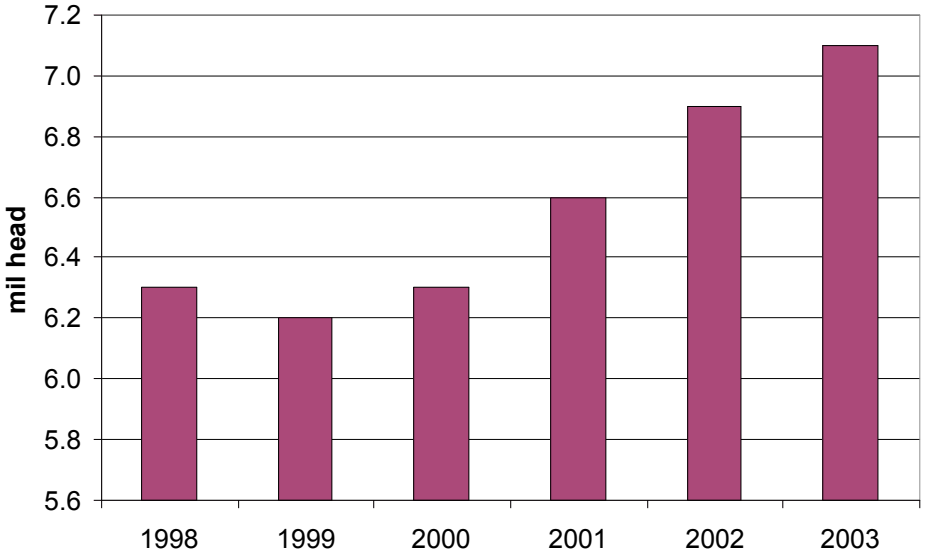
Figure 7. Swine Inventory and Number of Hog Farms, 1974-2002



Source: NASS/USDA, 2002 Census of Agriculture.

Despite the decline in inventories, there has been a corresponding increase in pork processing volume. In the last five years alone, there has been a 13% increase in commercial hog slaughter (Figure 8). This shift has meant that nearly one-third of the State's fed market hog production is imported. There still is a 10% deficit in today's processing capacity and this will only increase with the processing expansion already planned.

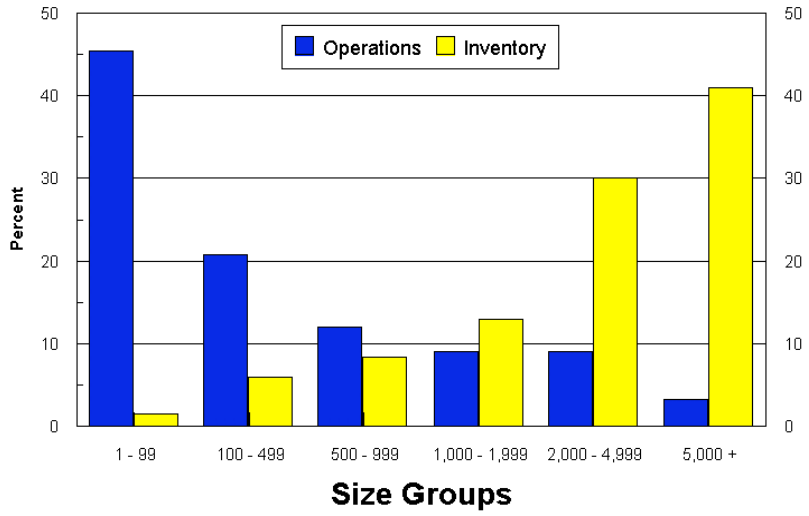
Figure 8. Indiana Commercial Hog Slaughter – 1998-2003



Source: Indiana Agricultural Statistics 2003-2004.

Concentration in the U.S. hog industry has occurred at a rapid pace over the last 10 to 15 years and this can also be seen in Indiana. Pork production in the State is diverse. Yearly production ranges from farms marketing 300 head per year to over 250,000 head (Figure 9).[18]

Figure 9. Indiana Hogs by Size Group
Percent of Operations and Inventory, 2003



Several constraints exist to continued growth in the pork industry. Indiana feed grain and soy protein prices can be higher than those in other parts of the Corn Belt. Labor wage rates trend higher than in other Midwestern States. Human population density is more intense in Indiana, raising additional concerns about hog production expansion and requiring ever-greater coordination with local communities over environmental and animal welfare issues.

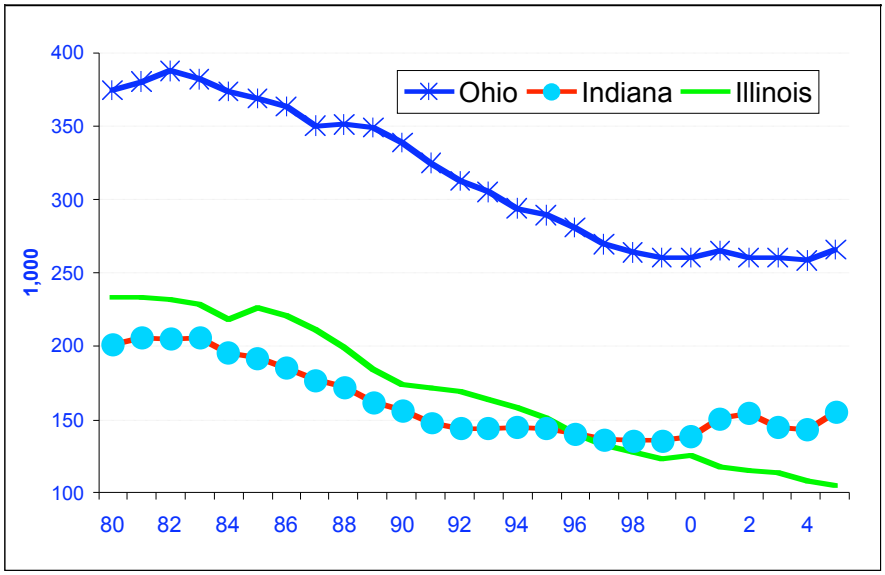
Demand growth in both the domestic and export markets, however, and closer coordination between producers and processors put Indiana in an ideal position to successfully expand hog production.

DAIRY. Dairy production is another growth segment in Indiana's livestock complex. Indiana has about 2,400 milk cow operations with approximately 143,000 milk cows (nearly 16% of the nation's total herd as of Jan. 2004). The State ranks 14th in the United States for milk production with 2.9 billion pounds produced in 2003 valued at $380 million.

Since 1980, the size of Indiana's cowherd has trended downward – as have those in neighboring States of Illinois and Ohio (Figure 10). However, in recent years, the trend appears to be reversing and some growth is reoccurring in the industry – both in terms of animal numbers as well as productivity gains.

[18] NASS/USDA, http://www.nass.usda.gov/in/charts/inhogsiz.gif.

Figure 10. Indiana Dairy Cows



Indiana is a milk deficit State – more milk is consumed than is produced in the State. But, already some quantities of raw milk produced here are exported and more is possible. Indiana is strategically located within a day's drive to major population centers in the East and Southeast and enjoys a suitable interstate transportation network. There also is an abundant cropland base for corn silage production and a moderate climate for dairy cows. These factors have contributed to a significant expansion in the sector with construction of new facilities (some with as many as 4,000 head) and dairy relocations from the western United States.

POULTRY. Poultry also is another important livestock and product industry to the Indiana agricultural economy. Indiana leads the nation in duck production and also ranks high in chicken and egg production.

About 22 million ducks are raised each year in the United States and most are produced on specialized farms in a few commercially important areas such as Indiana. In 2002, Indiana duck production was 1.14 million birds (30% of the nation's total). The State's corn and soybean production provides ideal feed supplies for the industry.

Indiana poultry farms raised 28.8 million chickens in 2003 (excluding broilers), placing the State 5th in U.S. production. The value of these chickens was $40.4 million. The hatchery business is another area where Indiana leads the nation. The State ranks 2nd in the production of egg-type chicks, with 58.2 million raised in 2003. There were 6 billion eggs produced by 23 million laying hens in 2003, placing Indiana 4th nationally (accounting for 6.9% of total U.S. production).

OTHER SPECIALTY CROPS. Fruit, vegetable and other specialty crop production in Indiana is very diverse. Some operations specialize in intensive production of high-value crops under cover and some produce large fields of vegetables for processing.

Indiana is home to a productive tomato processing industry – these tomatoes rank first in acreage (8,000 acres) and value ($17.6 million) among Indiana vegetable crops.[19] Watermelon and cantaloupe production, concentrated in the southwestern part of the State, also are important to the agricultural economy – Indiana ranks 5th nationally for both.

Apples are the State's most significant fruit crop, generating $9.3 million in 2003 on 4,000 acres. Most of the apple production is for the fresh market with only a small amount dedicated to processing. Blueberries also are grown throughout the State. About 80% of that crop ($2.9 million in total) goes to the fresh market as "u-pick" and "ready-picked" and the remaining 20% enters the processed market.

Summary

Indiana historically has been an agricultural state due to its land base, rich soils, logistics to markets and export terminals and its research and manufacturing base. Indiana ranks high nationally in a wide variety of areas including crop and livestock production but also vegetables, dairy products and other specialty crops.

Indiana has sustained its existing agricultural base due in part to strong national and global demand for commodities and to the research and educational capabilities of Purdue University. However, several trends have emerged that will challenge Indiana's future success. Many of these trends originate far beyond the State level, but it is imperative that we understand them and begin to adjust to them. The next section reviews several of these trends that are importantly affecting Indiana agriculture.

[19] Indiana Agricultural Statistics, 2003-2004.

FORCES DRIVING CHANGE

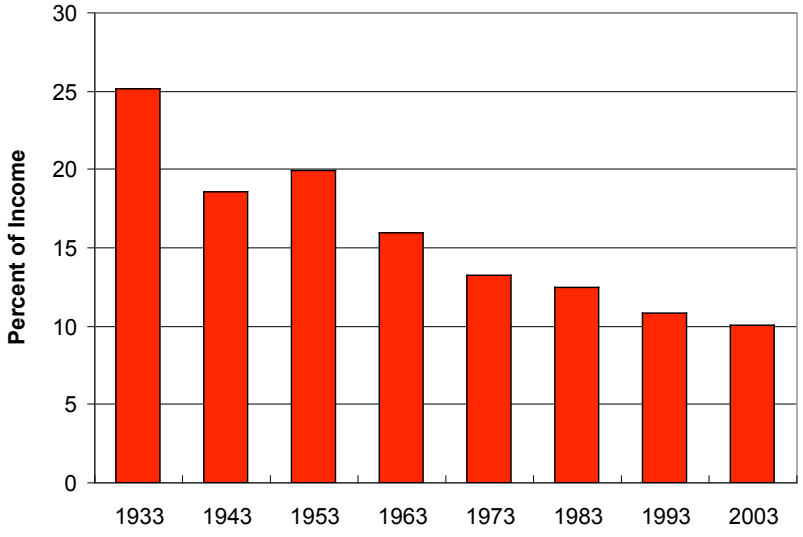
The dynamism that characterizes Indiana's food and agriculture system has developed slowly over time and continues relentlessly today. It reflects changes in our society – globalization of markets and cultures, advances in technologies, fundamental changes in our family and farm structure – and extends throughout the network of food marketing, distribution, trade and consumption. They reflect today's realities and are leading to a fundamental restructuring of the food system and a much different business environment for food and agriculture in the future. The following sections highlight some of the most important changes and trends affecting Indiana agriculture.

Consumer-Driven Agriculture

Historically, farmers' main objectives were to keep up with the food demand generated by a growing population. Over time, people wanted not only to ensure that their basic energy requirements were met, but also eat better through access to a wider variety of nutritious foods.

With more secure supplies of food, the consumer focus shifted to which foods were available and the services these products included. This became increasingly important as population growth slowed and incomes strengthened, changing the nature of demand for food. Today, domestic food needs grow only when the population expands, and it is growing slowly by historical standards. The share of income spent on food has fallen steadily over time, with proportionally more now spent on housing, automobiles, education and other goods and services (Figure 11).[20] In 2003, U.S. consumers spent only 10.1% of their disposable income on food purchases.

Figure 11. Food Expenditures as a Share of Disposable Income



[20] ERS/USDA, http://www.ers.usda.gov/Briefing/CPIFoodAndExpenditures/Data/table7.htm.

As the U.S. food market has matured, consumption growth for one food product increasingly comes at the expense of another. The number of foods labeled "low fat" or "health food" shows how the food system has evolved to address consumer demands. Dietary habits continuously evolve and are subject to trends such as the Atkins and Southbeach Diets and also to national nutritional guidance such as USDA's recently published Dietary Guidelines. Per capita protein consumption is up dramatically from levels two to three decades ago. Consumption of fresh fruits and vegetables also has increased substantially in just the last five to seven years.

As our markets mature, we have seen an explosion in new product introductions. Over 12,000 new food products have been introduced annually across 14 major food categories (ranging from baby food to soup). Retail food stores offer choices that provide novelty, variety and convenience.

Food marketing also is changing. Mass merchandisers, warehouse club stores, specialty stores, and restaurants are becoming increasingly favored over traditional supermarkets. In large part, these shifts in market share reflect the capacity of the discount/mass retailers to compete effectively on price. The five largest U.S. food retailers accounted for 40.3% of industry wide sales in 2002 – the same share held by the top 20 supermarket chains ten years earlier.[21] Growth by acquisition as well as the entry of Wal-Mart into the food business are the primary reasons for this trend.

Indiana's farm and food industry, of course, is largely affected by the changing profile of this mature market. It must respond by better coordinating the supply chain so consumer signals are translated quickly and effectively. By establishing direct ties to growers through contracts, food retailers can ensure that they provide specific product qualities tailored to consumer demand. Another response may focus on niche markets, which frequently exist side by side with mass retailing.

Another trend affecting agriculture is the excessive and unbalanced consumption patterns of Americans. There are now more food options for consumers than ever before. Grocery stores stock their shelves with a greater selection of products. Pre-packaged foods, fast food restaurants, and soft drinks are also more accessible. While such foods are fast and convenient they also tend to be high in fat, sugar, and calories.

According to USDA's Healthy Eating Index (HEI), nearly seven out of every eight Americans have poor diets or are in need of improving the nutritional quality of their diet. These new consumption patterns now clearly are resulting in obesity and increased risk of major chronic health problems such as cardiovascular disease, diabetes and arthritis. In 2001, the prevalence of obesity (Body Mass Index greater than or equal to 30) across the entire United States was 20.9% and the prevalence of diabetes was 7.9%, an increase of 5.6% for obesity and 8.2% for diabetes in one year.[22]

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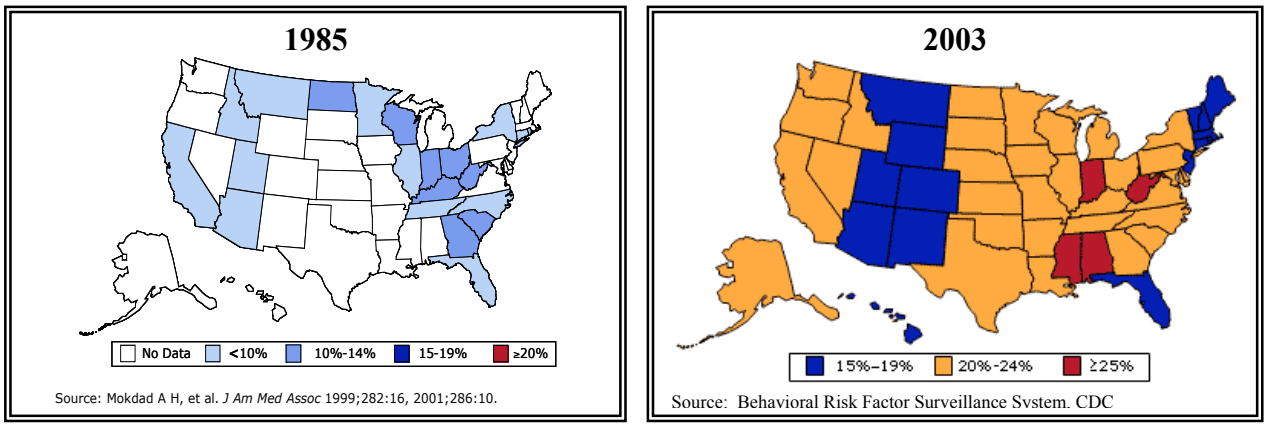
[21] Progressive Grocer Annual Report, April 2002.
[22] United States Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion – http://www.cdc.gov/nccdphp/dnpa/obesity/

As a direct consequence of poor diets and physical inactivity, the number of overweight individuals continues to increase (Figure 12).[23] Even as early as 1985, between 10% and 14% of Indiana's population was considered obese. In 2003, that proportion had jumped to over 25% - a trend only seen in three other States but is clearly emerging in many parts of the country.

Figure 12. Proportion of Overweight Population Has Risen



The implications are tremendous for future health, health care costs, and quality of life. There also is concern that as more children and adolescents become overweight, the chronic diseases that have typically been associated with people in their fifties may begin to appear much earlier.

The need for healthier eating patterns will require a concentrated research effort to develop new approaches, tools and technologies to motivate consumers.

Role of Agriculture in Renewable Energy Sources

Several forces are converging to make investments in energy-related industries profitable for rural areas. First, domestic energy production has not kept pace with domestic energy use, resulting in significant energy price increases in recent years. Second, rural areas are well suited as sites for the development of renewable energy. Finally, the emergence of air non-attainment zones in many parts of the country require review and development of alternative energy sources.

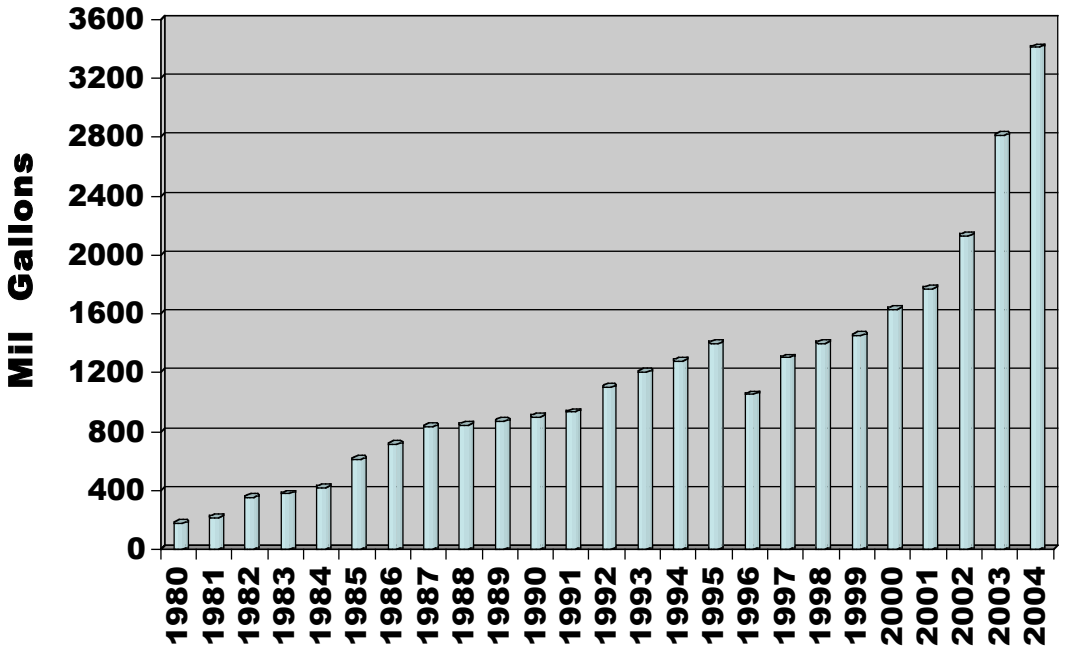
Also, as concerns continue to grow regarding the costs of fossil fuels and our energy dependence on unstable governments and regions of the world, particularly the Middle East, the expanded production and use of domestically produced renewable fuels in the nation's energy mix is gaining momentum.

Energy production from biomass offers enormous potential. Dedicated crops and agricultural residues can be used to produce transportation fuels, such as ethanol and biodiesel, and to power turbines to produce electricity.

[23] Defined as having a Body Mass Index greater than or equal to 30 or at least 30 pounds overweight for a 5'4" woman.

2004 continued the record growth trend that has defined the U.S. ethanol industry over the past several years (Figure 13). For the year, 81 ethanol plants located in 20 states produced a record 3.41 billion gallons, a 21% increase from 2003 and 109% since 2000.

Figure 13. U.S. Fuel Ethanol Production – 1980-2004



Construction of 12 new ethanol plants was completed in 2004. These new facilities, combined with expansions at existing plants, increased annual production capacity by 500 million gallons to over 3.6 billion gallons.[24] At the end of 2004, 16 plants and 2 major expansions were under construction, representing an additional 750 million gallons of production capacity (Figure 14). In 2004, dry mill ethanol facilities accounted for 75% of U.S. ethanol production, and wet mills 25%. Indiana only has one ethanol facility located in St. Joseph County.

[24] Renewable Fuels Association.

Figure 14. U.S. Ethanol Facilities – Completed and Under Construction

While ethanol production is growing rapidly, biodiesel and biomass electricity production would benefit from research and development efforts and pilot projects to overcome barriers to expanded commercialization.

Biodiesel is another obvious choice for providing that diversity in our energy mix, while simultaneously improving the quality of the air, expanding the domestic economy, and reducing the contribution to global warming. After a decade of testing and demonstration in the United States, a critical mass of biodiesel users has emerged and the industry is poised for rapid growth.

The production of biodiesel in the United States has risen dramatically from 1 million gallons in 1999 to 25 million gallons in 2002. With up to 80% of the production costs resulting from feedstock expenses, the high costs of inputs has constrained the growth of demand for the fuel. But, as demand for the fuel has expanded, several new production plants have emerged within the United States. In February 2000, there were thirteen biodiesel producers, up from only four just two years earlier (Figure 15). The growth has continued with registrations in December 2002 revealing that there were 18 biodiesel producers.

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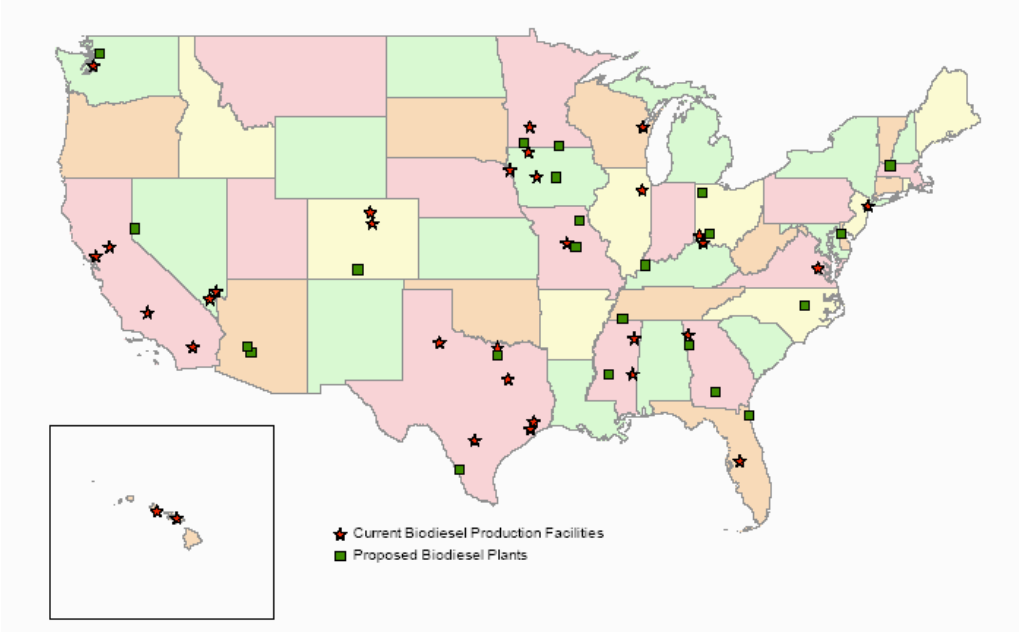
Figure 15. U.S. Biodiesel Production Plants (Current and Proposed) - 2005



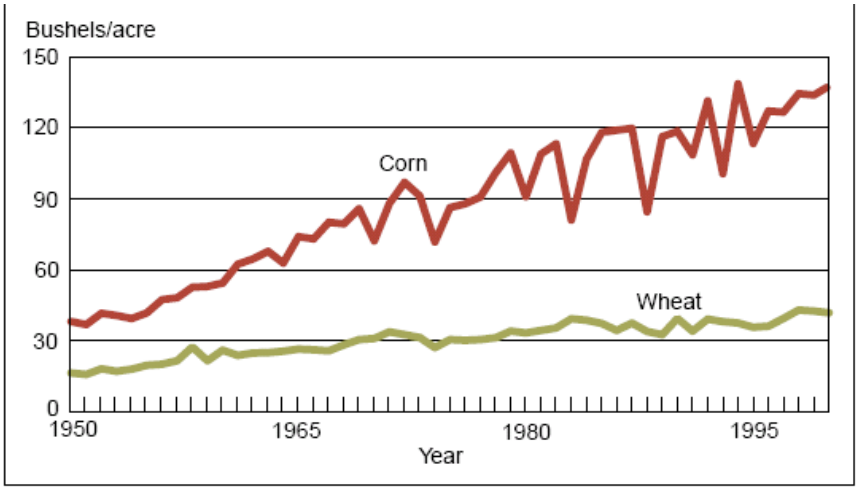
Source: National Biodiesel Board

Additional opportunities may exist in other new technologies (i.e., cellulose-to-ethanol fermentation or soy oil to aviation biodiesel) or even in the efficient use of animal waste.

Opportunities for Scientific Research and Development

Investments in agricultural research and technology development (R&D) have driven remarkable rates of agricultural productivity over the last 50 years. The more than threefold increase in national corn yields and more than doubling of wheat yields in the past 50 years is indicative of the ability of U.S. farmers to produce more with the same or fewer resources (Figure 16).

Figure 16. Growth in National Crop Yields Reflects Technological Progress



U.S. agricultural productivity has outdistanced most other industrial sectors of the economy, with an estimated 40% to 60% return on public sector investment. We must now ensure that the research infrastructure in Indiana is appropriately oriented to confront new challenges to the food system with equal success.

Since the mid-1980s, the level of public funding for agricultural R&D has been relatively flat. This trends calls out for a review in light of the changing conditions and emerging problems that have pressing needs for new and improved knowledge – areas including environmental quality, food safety, diets and health, and pest and disease management. The potential for accomplishing public research goals has never been greater because of developments in genomics and gene mapping, computational and information technologies, and better understanding of environmental systems.

It also is important to note changing incentives for private sector research and what they imply for the public sector role and for public-private partnerships. In contrast to the leveling-off in public R&D funding, research expenditures by the private food and agricultural industry tripled in real terms between 1960 and 1996, from about $1.3 billion to $4 billion. This trend follows from the expansion of laws providing intellectual property protections, which enhanced the ability of private firms to profit from agricultural research. At the same time, advances in biotechnology for example have strengthened companies' ability to protect their intellectual property.

The expansion of private research incentives allows public research to refocus on areas of benefit to society that in and of themselves are unlikely to be a focus for private endeavors. These needs include fundamental science and applied work in environmental quality (such as managing livestock waste, enhancing water quality, and mitigating soil degradation), food safety, plant and animal disease, and nutrition and health.

Carving out distinctly public sector research for the public good is now difficult because some knowledge or biological tools necessary to the task are increasingly patented by private firms. Public sector and university projects are often complicated by the need for researchers to negotiate licensing agreements with private firms. Such situations can be mitigated through new and creative institutional arrangements. The focus of any new form of collaboration, however, must increasingly facilitate cooperative research projects with multiple, complementary outcomes for public and private participants.

Strengthening research partnerships also requires ongoing review of the research portfolio in terms of the complement of funding vehicles to support university research. Universities in the land-grant system have historically provided the State-based partnership for the Federal agricultural research effort because of their connections to State and local issues and constituent needs, and their provision of a geographic base for disseminating research findings to States' farmers, communities, households, and consumers.

A balanced portfolio for supporting university research, including competitive grants and formula funds, sustains the dual university role: conducting much-needed basic research to support the agricultural and food system and partnering with Federal scientists. Competitive grants, which have been much slower to emerge in food and agriculture than

in other areas of science such as medicine, should increase, but without sacrificing the partnership support that formula funds provide.

Changing Farm and Trade Policy Dynamics

Many of the farm program approaches since the 1930s have proved not to work well or not at all, produced unexpected and unwanted consequences, became far costlier than expected, and have been continually modified in our long succession of farm laws.

The Federal Agriculture Improvement and Reform (FAIR) Act of 1996 removed much of the decades-old program structure, provided unparalleled farmer decision-making flexibility through "decoupled" benefits, and set a new example throughout the world for providing domestic farm sector support. While that approach still is arguably the least market- and resource-use-distorting approach available, its direct payments do share some unintended effects with price support programs, namely, the artificial inflation of farmland prices. The effect clearly was exacerbated by the size of government payments in the late 1990s.

The 2002 Farm Bill continued the direct farm sector support and actually added some new programs as well. Because of this historical evolution, current program benefits still are largely directed to specific commodity producers reaching only about 40% of our farms. And, there still is no direct relationship between benefits received and financial status of the farm.

Our current broad-scale, commodity-oriented approach to farm support does not recognize existing wide differences in production costs, marketing approaches, or overall management capabilities that delineate competitive and noncompetitive operations. For example, highly efficient commercial farms benefit enormously from price supports, enabling them to expand their operations and lower costs even more. Other farms have not received enough benefits to remain viable and have been absorbed along the way.

Another unintended consequence of current programs stems from the increasing disconnect between land ownership and farm operation. While program benefits were intended to help farm operators, most support eventually accrues to landowners, in the short run through rising rental rates and in the longer term through capitalization into land values. For many farm operators, renting land is a key strategy to expand the size of the business and capture the size economies, as evidenced by the nearly 45% of U.S. farmers renting land. Clearly, operators farming mostly rented acreage may receive little benefit from the programs.

A careful evaluation of federal farm policy in the context of today's diverse farm structure and increasingly consumer-driven marketplace is necessary. Improvements could support more sustainable prosperity for farmers and agriculture and rural communities without engendering long-term dependence on direct government support.

Already a few key policy forces are at work to frame the next Farm Bill debate. The current budget situation; the status of the World Trade Organization (WTO) trade negotiations; and the implications of the WTO trade case ruling brought by Brazil against

our current commodity programs all are coming together to potentially significantly alter the structure of the next Farm Bill.

The next set of programs must still provide a market-oriented economic safety net for farmers, but will need to be less trade distorting (a move towards more WTO "Green Box" programs) and still accommodate and build on the farm sector's wide diversity. In fact, a new generation of conservation programs could emerge to simultaneously address multiple environmental problems, support rural communities, make efficient use of Federal funds and comply with international trade agreements. Additional focus on rural development programs or even investments in refurbishing and modernizing the infrastructure that supports our farm, food and trading system are possible.

Trade is critically important to the long-term economic health and prosperity of our food and agricultural sector. We have far more capacity than needed to meet domestic food requirements. To avoid excess capacity throughout the system, we must maintain and expand our sales to customers outside this country. Steadily expanding foreign demand has helped U.S. exports increased over time from $7.3 billion in 1970 to $62.3 billion in fiscal year 2004. Without the supportive effects of an expanding export market, Indiana farm prices and net cash income would be significantly lower today.

We must continue to identify new market opportunities for Indiana agricultural products, while also working with Federal officials to ensure that our trading partners meet their obligations in existing agreements.

Changing Landscape of the Farm Sector

The explosion of productivity sparked by technological advances has meant big changes for the farming sector. A concentration of resources into fewer and larger farms occurred throughout the 20th century. While production doubled over the last 50 years, farm numbers dropped by more than two-thirds. Today, about 150,000 American farmers (7% of the total) produce over 80% of our food and fiber. While among the world's most competitive farms, these operations make up just one segment of U.S. agriculture. USDA counts another 2 million farmers who meet the criterion of selling at least $1,000 worth of product annually, many of whom have other occupations but enjoy rural lifestyles.

A vast diversity of farms emerges out of this multitude: niche farms, hobby farms, hunting preserves, dude ranches, 'u-pick' operations, farms that sell directly to consumers through farmer's markets, bed and breakfasts, and more.

Farmers produce scores of different raw commodities every year and countless varieties of products, even though bulk commodities—such as cotton, corn, wheat, and other food and feed grains that are the focus of government programs—symbolize agriculture for many. These program crops, grown on almost every farm in the 1930s, are produced today on perhaps only 30% of all farms and account for just 20% of the total value of agricultural sales.

In the 1930s, when price and income support programs first were developed, there was little need to distinguish among farms, farmers, or farm households. In fact, farms and households (and farming communities, in many cases) were closely intertwined as a

way of life and were considered inseparable. Today, fewer farmers are full time, choosing to merge farm and nonfarm employment opportunities. While income from farming, as measured by net farm cash income, was $77.8 billion in 2004, off-farm sources contributed $128 billion.

We see a highly diverse set of farms here in Indiana – they include hobby farms, part-time farms, a transition group of operations, commercial enterprises as well as industrial or processing operations. Each of these must in their own way apply unique technological possibilities to a new array of increasingly well-articulated consumer demands in a globalized food system. The sector will continue to change, particularly as forces including trade, farm policy, infrastructure demands, conservation and the environment, rural communities, and nutrition continue to dominate our agenda. How we approach these issues will set the course for the future of Indiana agriculture.

INDIANA AGRICULTURE: STRENGTHS, WEAKNESSES AND THREATS

Indiana has significant competitive strengths to leverage:

- A strong agriculture component to the State's overall economy – contributing about 5% of the total GSP and 15% of the total workforce;
- A productive land and soil base that sustains over 13 million acres of planted crops;
- 4.3 million acres of high quality hardwood forests on a productive land base supporting an industry which employs 47,000 Hoosiers;
- A central location within a one-day drive of two-thirds of the U.S. population, particularly the East Coast to which we are the closest agricultural producing State;
- The reputation of a historic agricultural leader with food and agriculture contributing a substantial share to the State's overall economy; and
- A world renowned land grant university which provides trained workers and modern technologies.

Indiana has significant weaknesses which must be addressed:

- A serious decline in food processing;
- A negative image in the industry of Indiana's environmental regulatory agencies which dissuades investment in the State;
- A lack of coordination between multiple state agencies involved with agricultural economic development;
- Land costs that are well above the national average and increasing each year;
- Emerging local land use regulations that are affecting producers' right to farm; and
- Reliance on Federal farm subsidies by a large number of the State's producers.

Significant threats to Indiana's agricultural economy:

- Recent lagged progress in Indiana's agricultural economy when compared to neighboring States;
- Possible biosecurity incidents that could affect Indiana's plant and animal agriculture as well as the larger food system;
- Increased regulatory scrutiny on agriculture that creates an unfriendly environment for new investment; and
- Increased price and production competition from other countries (i.e., China, Brazil, Argentina).

KEY CONCLUSIONS

A thorough review of the current status of Indiana agriculture and several key policy and structural trends lead to the following conclusions:

Agriculture is a cornerstone of Indiana's economy and represents a significant opportunity for the state's economic growth and development. Indiana's overall economy is mostly concentrated in manufacturing, retail and service industries, but the food and agriculture sector's share (over 5%) is an important and changing component. Farming and other related food and agricultural services also support a large number of jobs throughout the State – over 15% of the total workforce.

Indiana is in a unique position to emerge as a global leader in several food and agricultural industries. Indiana long has been a national and global leader in agriculture. The State's highly productive land base, its central location to much of the U.S. population, the innovative research of Indiana's higher education institutions and private industry, and its manufacturing expertise are central to its strength. The forces at work in the sector today put Indiana in a unique position to emerge as a global leader in several areas where we have comparative advantages.

Indiana's best opportunities are in the hardwood, grains, oilseeds and pork sectors. The State must focus on maintaining and *growing* its market share in each of these sectors.

- **Hardwoods.** Indiana's 4.3 million acres of high quality hardwood forests contribute significantly to the State's economy. Indiana ranks first nationally in the manufacture of wood office furniture and forest-based businesses, which are the fourth largest manufacturing sector by employment in the State. Significant pressures from foreign competitors and significant untapped private wood lots create the need to find ways to maintain this strong position.

- **Grains and oilseeds.** Traditionally known for being a national leader in corn and soybean production, Indiana must continue to support the economic viability of these segments while at the same time develop new technologies and uses for these crops – a great example being biofuels.

- **Pork.** Indiana has a long tradition of pork production supported by skilled producers and a strong industry infrastructure. The State's surplus corn and soybean meal production, abundant cropland and sufficient processing capacity make it ideally suited for pork industry growth. A lack of an industrywide focus or growth plan over the last decade has resulted in a 30% reduction in breeding herd inventories and a 20% decline in market hog inventories.

Indiana must actively participate in and lead the burgeoning biofuels industry by developing a comprehensive energy research and investment facilitation plan. Investments by industries involved in renewable energy are needed. Nationally, growth in ethanol production has more than doubled since 2000, and biodisel production of only 1 million gallons in 1999 is now over 30 million. Domestic energy production has not kept pace with utilization, contributing to recent price spikes. Clean Air Act non-attainment zones have emerged in many parts of the country, creating immediate and substantial demand for fuel additives from renewable sources. Rural areas with nearby commodity production are well suited sites for processing facilities.

Indiana can and should establish itself as the global leader in food science and innovation to better address critical health and nutrition issues for the State's consumers. New excessive and unbalanced food consumption patterns of Americans are resulting in obesity and increased risk of cardiovascular disease and diabetes.There is a growing demand now from the consumer for healthy and nutritious foods.The ability to develop and commercialize these new foods and then distribute them to the public will be critical in the future.

Indiana's agricultural structure is very diverse. Only a small number (3%) of large-scale operations produce over two-thirds of the State's agricultural output. The remaining 97% of farms are in two distinct categories: those relying on their farms for 100% of their income and those with part-time farms.The wide variety of agricultural endeavors, circumstances and lifestyles requires more refined policy and business initiatives that are best suited for each type of farm segment with a particular focus on those who today rely entirely on farming for their income.

U.S. farm and trade policy are critical to the long-term health and viability of Indiana's food and agricultural sector. The State must play a leadership role in advocating Federal farm and trade policies that support our rural and farm economies. This must be done in close coordination with Indiana's Congressional delegation and other key policy officials at the U.S. Department of Agriculture (USDA), the Office of the U.S. Trade Representative, and in Indiana's farm and commodity groups, among others. The Department's Division of Soil Conservation also has an important role in this coordination due to recent increases in Federal conservation funding.

Indiana's regulatory bodies must be improved to support a strong and growing agriculture, with an emphasis on leadership, permitting and compliance. Agriculture's growth in the past has been constrained by regulatory processes.The Indiana Department of Environmental Management (IDEM) plays the most active role of any State agency in regulating agriculture. Other agencies such as the Department of Natural Resources (DNR), the Department of Transportation (DOT), the Board of Animal Health (BOAH) also are involved. Greater coordination is needed between ISDA and IDEM especially to ensure the needs of an expanding agriculture and protection of our natural resources are balanced.

Indiana's State Department of Agriculture must lead and guide food and agriculture's growth and must have a focused, action-based strategic plan. Indiana's future agricultural growth critically depends on a strong and prioritized plan. ISDA must lead this effort while still coordinating closely with other State agencies and key stakeholder groups. The leadership of ISDA will undoubtedly raise the visibility of agriculture within the State and across the nation.

Our changing farm structure suggests that a "one size fits all" approach to business development and agricultural policy is no longer sufficient. A narrow focus on basic commodity production, increased environmental and regulatory concerns and missed opportunities in new markets have left Indiana agriculture with little direction for the future.

VISION AND STRATEGIES

These findings and conclusions form the basis for our overarching vision for food and agriculture in Indiana. There are seven specific, action-oriented strategies that Indiana should pursue to maintain its current competitive position, address its key weaknesses and build upon its strengths. The vision and key strategies are described in more detail in this section.

VISION

Indiana will be a Global Center for Food and Agricultural Innovation and Commercialization.

Agriculture is fundamentally important to the Indiana economy but is uniquely poised to become even more so in the future. Indiana's strength in the production of traditional crop and livestock commodities as well as hardwoods must be maintained. More importantly, this strength must be used to advance new market development for these and other products and research and technological opportunities around the world.

The combination of the research expertise of the State's higher education institutions as well as the strong manufacturing background will facilitate the innovation of food and agricultural products and processing techniques. Indiana must work to ensure that a supportive business and a competitive regulatory climate is in place to foster commercialization of these products.

STRATEGIES

Each of these strategies is equally important to the objective to grow Indiana's food and agricultural sector and each will be pursued with equal resolve.

Hardwoods – Increase the cost-competitiveness of Indiana's high quality hardwood products.

Indiana is known around the world for growing, processing and assembling quality hardwood trees and products. Growing competition from wood product manufacturers in China, Latin America and elsewhere, however, threatens the viability of Indiana's hardwood industry. It is critical that a focused initiative be developed to not only maintain the competitiveness of Indiana's hardwood sector, but more importantly, to create new growth opportunities. This must be done through technology breakthroughs (i.e., log utilization and production technologies and genetics) and encouraging more private wood lot owners to participate.

Bioenergy – Maximize Indiana's competitive advantage in agriculturally derived energy.

Indiana has the opportunity to capitalize on its grain and oilseed production capacity and its strategic geographic position to the East Coast by dramatically increasing its production of biofuels. Purdue University is one of the top research universities in the nation in the development of biofuels and other alternative energy sources.

Indiana currently ships over 30% of its grain out of state for livestock feed use or for export. We must focus on the competing demands for grain and oilseed production to ensure a sufficient supply exists for new uses such as ethanol and biodiesel. Indiana's grain transportation advantages also would support fuel shipments to the Northeast, mid-Atlantic and Southeast.

Additional business and research initiatives will be considered to facilitate an attractive investment climate for bioenergy production as well as define future bioenergy opportunities.

Regulatory Coordination – Ensure that agricultural regulatory standards are science-based and do not impede economic development.

Indiana's newly created State Department of Agriculture will not assume any new regulatory authority. However, it must work closely with the State's regulatory agencies to ensure science-based standards are considered in agricultural matters. An Agricultural Regulatory Council will be formed and led by the Lieutenant Governor's office to review important crosscutting agricultural issues. Senior officials from the relevant agricultural regulatory agencies will be directly involved.

Indiana's livestock industries – pork, dairy and poultry especially – increasingly are pressured by emerging environmental concerns. ISDA, IDEM and other agencies must support these industries by improving implementation of existing regulations, supporting development of new technologies to control animal waste and odor. At the same time, this coordination must protect Indiana's natural resources and enhance the working relationships between farmers and the citizens of their communities.

Pork – Double hog production by adopting breakthrough technologies in environmental and animal welfare management.

The natural conflict that has emerged between environmental stewardship, animal welfare and increased livestock production needs attention in this State. Successful, managed growth in this sector is dependent on a full review of current State regulations and adoption of new breakthrough technologies to control and ideally eliminate waste and odor issues.

Indiana has the land base, grain and oilseed production and research capabilities in animal science, health, and nutrition needed to double hog production. The demand for pork and pork products in both domestic and international markets continues to increase. And, Indiana's pork industry has both the capacity to process additional animals and the ability to transport finished products to end markets.

Diversity of Production – Lead the nation in identifying diversification strategies that enhance the economic viability of producers of different sizes and areas of production.

The rapid changes in agriculture to a consumer-driven industry creates niches and market opportunities for all of Indiana's producers – from grains and oilseeds to livestock to specialty and horticultural crops.

Indiana's farm structure also has evolved over time. There are 1,856 farms with annual gross sales over $500,000 – while representing only 3% of the State's farms, this group produces over two-thirds of our total agricultural output. A second group of farms falls into a middle category with annual sales of $100,000 to $500,000 – they are 14% of the farms with 19% of our total production. Farms with annual sales less than $100,000 (83% of all farms) produce 13% of the total output. The farm structure is not homogenous and thus requires a focus on opportunities tailored to producers of different sizes and types of production.

And, continued consolidations in agriculture and likely changes in the traditional Federal farm program structure in the next Farm Bill could result in a large number of producers struggling to remain economically viable.

The ability to diversify and seek new markets and new product opportunities will be critical to many Indiana farms. The State will help identify viable platforms for these producers.

Food Processing – Incubate innovative food products that use Indiana agricultural commodities to support nutritious and healthy diets.

Indiana's abundance of raw agricultural commodities and expertise in food manufacturing ideally position it for new investments in food processing. Consumer demand for healthy and nutritious foods is growing in response to emerging health issues like the obesity epidemic.

Indiana has tremendous research and development capacity for more nutritious and healthy foods, particularly at Purdue University. And, the ability to commercialize these new foods will be critical. The State will create a partnership between the research and investment communities to lead the nation in launching new companies.

Federal Farm and Trade Policy - Establish a State leadership role in formulating U.S. agricultural and trade policy to promote sustainable economic competitiveness.

Indiana agriculture is directly affected by federal farm and trade policies. The farm programs that are legislated by the Farm Bill provide significant support to producers – in 2003, Indiana farmers received over $446 million in direct government payments or about 30% of the sector's net cash income.

International trade and agricultural exports also are critically important to the economic well-being of the sector. In 2003, the value of agricultural commodities exported from Indiana was $1.6 billion. Developments in trade policy (i.e., the WTO negotiations and other bilateral and regional Free Trade Agreements) could result in more key markets for Indiana's food and agriculture products.

Debate on the next Farm Bill is beginning and several key trade negotiations are underway. ISDA along with stakeholder groups should support key Federal and Indiana Congressional officials in advocating policies and programs that are best suited to our agricultural structure and our rural and farm economies.

ACTION PLAN

The State of Indiana and ISDA will work with key stakeholder groups to take specific actions to make each strategy a reality. The action plan for each strategy will be further developed over the next few months and publicly released at the Indiana State Fair in August.

Each action will be focused in five key areas. The list of actions will be reviewed at least quarterly. New actions will be added as needed and as these are completed. The actions are as follows:

1. **Statewide Initiatives.** All strategies will require statewide activities and initiatives such as legislative changes, economic development opportunities, securing Federal and private funds, and leading new technology development.

   ISDA will immediately convene an ad hoc task force for each key strategy. Each task force will develop the more detailed action plans to be presented at the State Fair.

2. **County/Regional Strategic Teams.** ISDA will foster County or Regional Strategic Teams to include leadership from the local Farm Bureau, Soil and Water Conservation Districts, County Extension, and the County Plan Commission, among others. A consulting group from ISDA will initially lead this team.

   ISDA will work to reach all counties in the next four years and help draft economic development plans. ISDA also will support county/regional efforts to develop land use policies as part of these plans. The County/Regional Strategic Teams will implement and refine the plans on their own.

3. **Communication and Education.** To advance the kind of change anticipated, an aggressive communication and education effort must be employed. To accomplish this, ISDA will conduct extensive outreach in many formats such as media, public forums and farm visits.

4. **Federal Interaction.** Every strategy will require and will benefit from Federal policy or funding. Thus, every strategy will have detailed actions that will require ISDA to work with the Congress, USDA and other Federal agencies.

5. **Upstream Innovation.** Indiana has an opportunity to build upon its heritage and reinvent food and agriculture. This will require new and/or renewed partnerships between Purdue University, the State's producers/processors/manufacturers, ISDA, the State legislature, and private funding sources. Also, aggressive and specific objectives must be established which not only lead to breakthrough innovation but also lead to the practical commercialization of these innovations.

Detailed Action Plans

Detailed plans for each of the aforementioned action areas and corresponding with each of the strategies are as follows. This list of actions will be reviewed at least quarterly, and new actions will be added as these are completed. Therefore, the list below focuses on key immediate actions for ISDA.

Overall Strategic Plan Implementation

Statewide Initiatives

- Create an Indiana State Department of Agriculture Advisory Board of industry thought leaders to advise the Department. Board assembled by May 2005.
- Create an Ag Foundation to secure $25 million in private funds by 2008 to be used to advance research, economic development and outreach efforts. A Board of Directors for the Foundation to be assembled by June 2005 and capital plan complete by August 2005.

County/Regional Strategic Teams

- Assemble the State's consulting team to include ISDA, Indiana Farm Bureau, Purdue University, and likely an outside consulting firm. The team will be charged with developing a standardized plan to use in the counties (including economic development and land use), a roll-out list to counties over the next four years, and the recommended county-level members. This plan will be complete by August 2005.
- Begin the roll-out process in the first set of counties by November 2005.

Communication and Education

- Develop a marketing plan to communicate ISDA activities and the progress of Indiana agriculture toward this plan. Plan complete by August 2005.

Hardwoods

Statewide Initiatives

- Work closely with DNR and specifically the State Forester to develop a more proactive plan that will use the State's forests and nurseries to help promote good forest practices for private land users. Plan complete by December 2005.
- Develop/improve the State's web database of qualified and State approved forest managers and harvesting companies that can be used by private owners to insure legitimacy and speed. List complete and verified by December 2005.

County/Regional Strategic Teams

- Identify the county's private hardwood owners and assess value.
- Using the local Extension Service, contact all private owners to inform them of the economic potential of their hardwood lots. Conduct a series of training sessions on how to optimize their hardwood resources and put the private owners in contact with qualified managers and harvesters.

Communication and Education

- Deploy a statewide education effort on the environmental effects of good forestry practices and the potential profit in private hardwood lots. Plan drafted by August 2005.

Federal Interaction

- Advance a policy change to re-institute the matching dollars for forestry in the 2007 Farm Bill. Policy and plan drafted by August 2005.

Bioenergy

Statewide Initiatives

- Develop a bioenergy task force to include ISDA, the State's Energy Department, the Indiana Soybean Board, the Indiana Farm Bureau, the Indiana Economic Development Corporation (IEDC), Purdue University, among others. The task force will oversee and recommend all statewide initiatives and should be in place by May 2005.
- Commission a study to identify the future opportunities and economic impact in bioenergy. Study complete by August 2005.
- Attract at least two large ethanol and two large biodiesel companies by December 2006.
- Finalize and implement Senate Bill 278 to improve the State's ethanol and biodiesel incentive package by May 2005.
- Develop a public/private cash incentive program to attract new biodiesel production. Incentive fund to be complete by June 2005.
- Develop a plan to increase the State's usage of ethanol and biodiesel to 10% of total fuel usage by 2010. Plan complete by March 2006 at the completion of the 2006 Legislative Session.

Federal Interaction

- Secure matching grants from the USDA, Department of Energy (DOE), and Department of Defense (DOD) to build a leading bioenergy research center in Indiana. Matching grants secured by December 2005.

- Advocate for the continuation of ethanol and biodiesel incentives by insuring Indiana's Congressional delegation understands the importance to the state. Initiate this effort with a face-to-face meeting on the topic with all Congressional members by August 2005.

Regulatory Coordination

Statewide Initiatives

- Develop an Agriculture Regulatory Committee (ARC) to be chaired by the Lieutenant Governor and to include IDEM, DNR, ISDA, all of Purdue University's regulatory bodies (e.g., State Chemist), and the key federal partners (USDA and the Environmental Protection Agency (EPA)). ARC will review all agriculture regulations and rules to insure that they are science based, not redundant with other regulations, and most ideally suited in their agency of origin. ARC will be initialized by August 2005.

- Assemble an industry CAFO/CFO team to include ISDA, key livestock organizations, IDEM, and EPA by May 2005. The team will be charged with reviewing all of Indiana's CAFO/CFO rules and processes and offer a holistic new approach by August 2005.

- Create a web-based ombudsman for Indiana's agricultural industry to use as a means of seeking help on key regulatory issues. Site complete and statewide by March 2006.

Pork

Statewide Initiatives

- Develop a pork task force to include ISDA, Purdue University, the Indiana Pork Producers, Indiana Farm Bureau, the Indiana Soybean Board, and IDEM, among others. The task force will oversee and recommend all statewide initiatives and should be in place by August 2005.

- Use the Livestock Promotion Fund to fund pilots of breakthrough technologies to reduce and virtually eliminate odor and waste issues. Technologies vetted and top three identified and ready for "test markets" with 1-3 Indiana livestock farmers by July 2005.

- Increase pork processing and packing capacity by more than 25% by 2010. Develop a targeted economic development plan to achieve this goal by August 2005.

- Enhance and improve Indiana's nuisance suit laws to insure current producers have adequate protection to expand operations. Finalize and implement Senate Bill 267 by May 2005. Prepare additional legislation if needed by August 2005.

- Lead the development of an Indiana Livestock Venture Fund to help provide producers another, non-debt based form of investment to expand their operations. Fund established by July 2006.

- Advance legislation to qualify producers for economic incentives currently afforded to other business owners who invest and create jobs. Legislative package complete by August 2005.

County/Regional Strategic Teams

- Review and recommend changes to any county ordinances which are more stringent than the State or Federal regulations.

- Work with counties to clearly identify livestock production zones and that future growth must acknowledge and accept these areas.

Communication and Education

- Deploy a statewide education plan to demonstrate the economic impact of livestock production, the stewardship of producers, and potential for technology to change many of the current issues. Plan drafted by August 2005.

Federal Interaction

- Secure USDA and/or EPA grants to advance the development and implementation of new technologies to reduce and ultimately eliminate odor and waste issues. Grants secured by December 2005.

Diversity of Production

Statewide Initiatives

- Develop a Diversification Task Force to include ISDA, Purdue University, Indiana Farm Bureau, the Extension Service, and the Farm Service Agency (FSA), among others. The task force will oversee and recommend a plan to establish diversification strategies for Indiana producers. Team assembled by May 2005.

- Commission a research study to better identify the different profiles and needs of Indiana's producers. Study complete by August 2005.

- In conjunction with Purdue University, identify 3 to 4 diversification platforms that would be suitable for Indiana producers wanting to diversify their operations for sustained profitability. Also, identify a general business plan platform for producers who have identified their own diversification strategy. Platforms identified and proven to be economically sustainable by August 2005.

- Develop an implementation plan including appropriate outreach, training, and resources to educate/inform producers of these new platforms by August 2006.

County/Regional Strategic Teams

- Identify 10-15 producers in each county who are interested in one of the diversification platforms. Enroll them in the diversification programs.

Federal Interaction

- Develop a partnership with the USDA to make Indiana a pilot on diversification programs and secure grants to help fund the implementation in the State.

Food Processing

Upstream Innovation

- Establish an Upstream Research Team including ISDA, Purdue University's College of Agriculture, Purdue College of Engineering, Indiana University's School of Medicine, Purdue University's Research Park, and key representatives from the venture community. The team will immediately be charged with identifying an upstream research plan by August 2005 to include the following:

    - *Identification of the key research platforms that will maximize Indiana agriculture products as well as 1 to 2 initiatives that are ready for commercialization;*
    - *A venture fund to support new innovations; and*
    - *An operational and logistics plan to include space in Research Park, an initial management team.*

- The initial platforms must include the following:

    - *Log scanning and other upstream hardwood technologies;*
    - *Upstream bioenergy research;*
    - *Advanced pork genetics and environmental management; and*
    - *ealth and nutrition advancement in food.*

Federal Farm and Trade Policy

Statewide Initiatives

- Develop a Federal Policy Task Force to include ISDA, Purdue University, Indiana Farm Bureau, representation from the commodity and livestock organizations, FSA, Natural Resources Conservation Service (NRCS), and the Administration's Washington Policy Director, among others. The task force will develop Indiana's formal positions on all Federal agricultural policy issues. The initial task will be to develop positions on current Federal issues and outline an initial set of recommendations for the 2007 Farm Bill by Fall 2005.

- Develop an Indiana Agriculture Trade Task Force to include ISDA, the IEDC, Indiana Farm Bureau, and representation from the commodity and livestock organizations. The task force will develop Indiana's agriculture trade strategy and positions on key trade issues. The initial task will be to take formal, public positions on the key agriculture trade initiatives currently underway (i.e., the Central America Free Trade Agreement (CAFTA), WTO Doha negotiations, U.S./Japan beef trade) by August 2005.

Federal Interaction

- Develop a solid working relationship with the USDA, Indiana's Congressional Delegation, and the Congressional Ag Committees. This should include at least quarterly visits to Washington and at least annual visits with the aforementioned constituencies.

- Participate in all field hearings relevant to Indiana for the 2007 Farm Bill.

- Participate in key trade hearings and negotiations that have immediate and germane impacts on Indiana agriculture.

MEASURES

Progress must be reviewed and measured in simple terms: did we increase jobs and wages and, in the case of ISDA, net farm income and agriculture's contribution to the State's economic development? The segments of the industry all are component of that growth and also must be measured at an operational level. The remainder of this section and the following matrix provide the specific growth targets and measures that will be reviewed regularly to ensure successful implementation of our key strategies.

ISDA will measure its success based upon growth in the agriculture and agribusiness economy, its percentage of the total Indiana economy, and the increase in value-added food manufacturing. Innovation will be measured by the development and commercialization of new technologies in private industry and at our universities. We also will work to leverage more federal resources for our agricultural economy to fund more research and more commercialization projects.

- **Hardwoods.** Private ownership of hardwood forests is critical to maintaining the long-term inventories of this sector. Technological adoption, genetics improvements and increased manufacturing productivity are critical to maintaining this industry's competitive advantage. We will monitor both technology adoption practices and cost of production relative to global competitors.

- **Bioenergy.** There are two components to our successful promotion of biofuels production and use. First, we must produce the amount of biofuels that is required by domestic consumption. This provides health benefits though cleaner air, establishes a new market for our farm products and increases net farm income. Currently, Indiana consumes 8.7 million gallons of gasoline per day. By promoting an E-10 blend rate, we will require upwards of 300 million gallons of ethanol production per year. Our goal is to grow the consumption of biofuels so that they represent 10% of total fuel use by 2010. Second, we will focus on utilizing new technologies to generate energy from waste systems and other non-traditional fuels.

- **Regulatory Coordination.** Indiana's regulatory climate will be monitored by a comprehensive and frequent review of the time needed to complete a permitting process and the number of unresolved issues after the permit is granted. ISDA will work closely with IDEM officials to review this progress.

- **Pork.** Pork has been the dominant livestock sector in the State. We will chart the growth of this industry using USDA/Indiana Agricultural Statistics annual inventory data. This growth also will result in increased use of corn and processed soybean products.

  Processing or adding value to the animal after slaughter supports farm and rural economies and employment. We will track the number of pounds of meat processed.

Growing animal agriculture as good stewards of the land is our objective. Thus, we will review the growth in the number of animal feeding facilities, the number of complaints brought to State government agencies about these facilities, how the complaints and issues are being addressed and also the percentage of facilities utilizing technology to address key environmental concerns.

- **Diversity of Production.** Federal support for agriculture will be changing in the next Farm Bill. This may mean overall less spending or it may mean a shift in funding from the traditional farm programs to conservation or rural development programs. Indiana farmers must be prepared for such a change and consider more diversified income streams. We will work with producers on new plans to prepare for this business diversification.

- **Food Processing.** The promotion of healthy eating and nutritious diets for all Hoosiers is important. We intend to fully support and encourage the establishment of new food companies that produce healthy products and use our agriculture commodities as raw material. We will monitor the incubation of new food companies and the attraction of venture capital invested to these companies.

- **Federal Farm and Trade Policy.** Interaction with Federal policymakers will be key to our strategy to influence the next farm bill and trade policy. We will greatly increase the number of meetings and other interactions of our stakeholder groups and constituents with these policy makers. One outcome of the next Farm Bill may be programs that will require pilot sites. The number of those sites in Indiana will be one measure of our success in influencing the next set of programs.

ISDA continues to populate several of its measures with data from multiple sources. For those areas without data, a source is mentioned indicating from where the data will come.

INDIANA STRATEGIC PLAN MEASURES – 2004 THROUGH 2025

	2004	2005	2006	2007	2008	2009	2010	2015	2020	2025
OVERALL DEPARTMENT										
Employment (000 jobs)										
-- Farm (2003 IN Ag Statistics)	58.3	57.1	56.6	56.0	55.4	54.9	54.3	52.0	50.0	50.0
-- Processing (2003)	197.0	202.9	208.9	215.3	221.7	228.4	235.2	246.9	250.0	250.0
Gross State Product										
-- Agriculture's % of Total	5%	5%	5%	6%	6%	6%	7%	7%	8%	8%
Innovation Leader										
-- # of Ag or Food Patents	8	8	9	9	9	10	10	12	14	15
% Agreement that Indiana is Innovation Leader in Agriculture	**Survey to be conducted**									
Funding										
-- USDA or other Federal Funding										
--Rural Development (mil $)	$161	$180	$200	$230	$260	$290	$320	$350	$400	$450
--FSA Program Payments (mil $) (Commodity, farm loan and CRP)	$377	$350	$325	$280	$270	$260	$250	$200	$200	$200
--NRCS (Conservation programs) (mil$)	$25	$28	$33	$45	$50	$55	$60	$70	$80	$90
--Research funds (ARS, other)	**Survey to be conducted to establish benchmark**									
HARDWOODS										
Total Production Cost vs. China	**Industry compiling data**									
% of Hardwood Lots Under Private Ownership (Maintain)	83%	83%	83%	83%	83%	83%	83%	83%	83%	83%
% of Private Hardwood Lots Managed	**Survey to be conducted**									
# of New Technologies Identified	2	1	1	1	1	1	1	1	1	1

INDIANA STRATEGIC PLAN MEASURES – 2004 THROUGH 2025

	2004	2005	2006	2007	2008	2009	2010	2015	2020	2025
BIOENERGY										
Production (MM gallons)										
-- Ethanol	102	102	150	200	200	250	300	300	350	350
-- Biodiesel	0	0	20	40	60	80	100	120	150	200
Statewide Usage (% of total fuel usage)	3	3	5	6	7	9	10%	15%	20%	25%
-- Ethanol	--	3%	4%	5%	7.5%	8%	10%	15%	20%	20%
-- Biodiesel	--	1%	2%	5%	5%	10%	20%	20%	20%	20%
Upstream Research Funding (mil $)	--	--	$10	--	$20	--	--	$30	--	--
REGUALTORY COORDINATION										
% Agreement that Ag Regulatory Climate has Improved				**Study to be conducted**						
Permitting										
-- Length from start to finish (days)			**Coordinating with IDEM to establish benchmark**							
-- # of unresolved issues			**Coordinating with IDEM to establish benchmark**							
PORK										
Production (# of Head)										
-- Hogs (mil head - inventory)	3.49	3.50	3.60	4.50	5.40	6.30	7.00	7.30	7.60	7.90
-- National market share (%)	5.3%	5.3%	5.5%	5.5%	6.0%	6.5%	7.0%	8.0%	9.0%	10.0%
Packing / Processing										
-- Hogs (mil head) (12% growth over past 5 years)	7.12	7.98	8.93	10.01	11.21	12.55	14.06	15.74	17.63	19.75
-- Number of Plants	8	8	8	8	9	9	9	10	10	10
Environmental Issues										
-- % of Facilities using Elimination Technology				**Study to be conducted**						
-- % Agreement that Issues are being Addressed				**Study to be conducted**						
-- # of CAFO Complaints	485	450	350	275	200	150	125	100	75	50

INDIANA STRATEGIC PLAN MEASURES – 2004 THROUGH 2025

	2004	2005	2006	2007	2008	2009	2010	2015	2020	2025
DIVERSITY OF PRODUCTION										
% of Total Indiana Farm Net Income from Government Payments	35%	35%	30%	25%	25%	25%	25%	20%	20%	20%
# of Farms with Business Plans				**Study to be conducted**						
FOOD PROCESSING										
# of New Companies Incubated (each yr)	--	--	3	3	3	3	3	3	3	3
Venture Funds Invested (mil $)	--	--	$1	$5	$10	$10	$15	$15	$20	$20
FEDERAL FARM & TRADE POLICY										
# of Interactions										
-- USDA	0	5	10	10	5	5	5	5	5	5
-- Congressional Leadership	0	10	15	20	10	10	10	10	10	10
Indiana Ag Export Sales (bill $) (2003 - $1.62 bill)	1.78	1.96	2.16	2.37	2.73	3.14	3.61	3.80	4.00	4.25
Farm Bill										
-- # of Programs Piloted in Indiana	0	0	0	3	--	--	--	--	--	--
-- # of Testimonies Given by Indiana Delegation	0	3	10	4	2	2	2	2	2	2

NEXT STEPS

This strategic plan sets the course for Indiana agriculture over the next several years but also is a work in progress. Changing forces and emerging issues requires that we be flexible in our planning and operations.

ISDA will provide focused leadership to ensure that agricultural economic development is integrated with the State's overall economic development efforts. ISDA also will continuously work to identify and implement statewide strategies to defend and expand the agricultural economy.

ISDA with the Agricultural Advisory Board will review at least quarterly the overall strategic plan and the action items outlined in this document. New action items will be added as the initial ones are completed. And, metrics will be reviewed on a regular basis to make sure we are successful in meeting our goals.

ISDA also will cooperate with those food and agricultural industries not specifically highlighted in the Strategic Plan in their own efforts to expand and grow. This cooperation will certainly vary by industry segment but may be in the form of open dialogue, consideration of specific industry proposals, among others.

Finally, ISDA's two divisions, the Indiana Grain Buyers and Warehouse Licensing Agency and the Division of Soil Conservation, also are developing tailored strategies and actions that support this overall plan. These should be completed by August 2005.